AUSTRALIAN
MODEL RAILWAY
MAGAZINE

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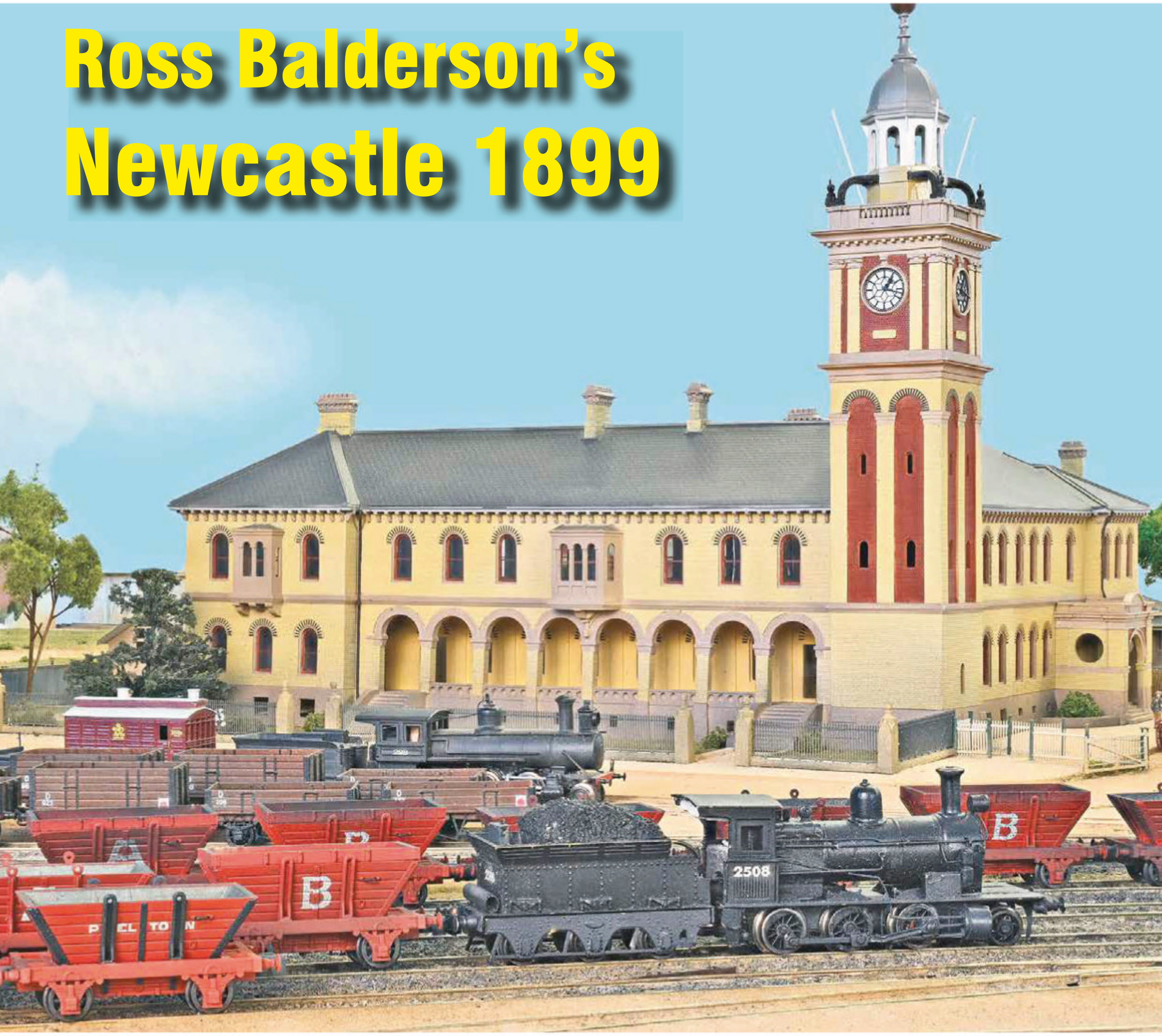
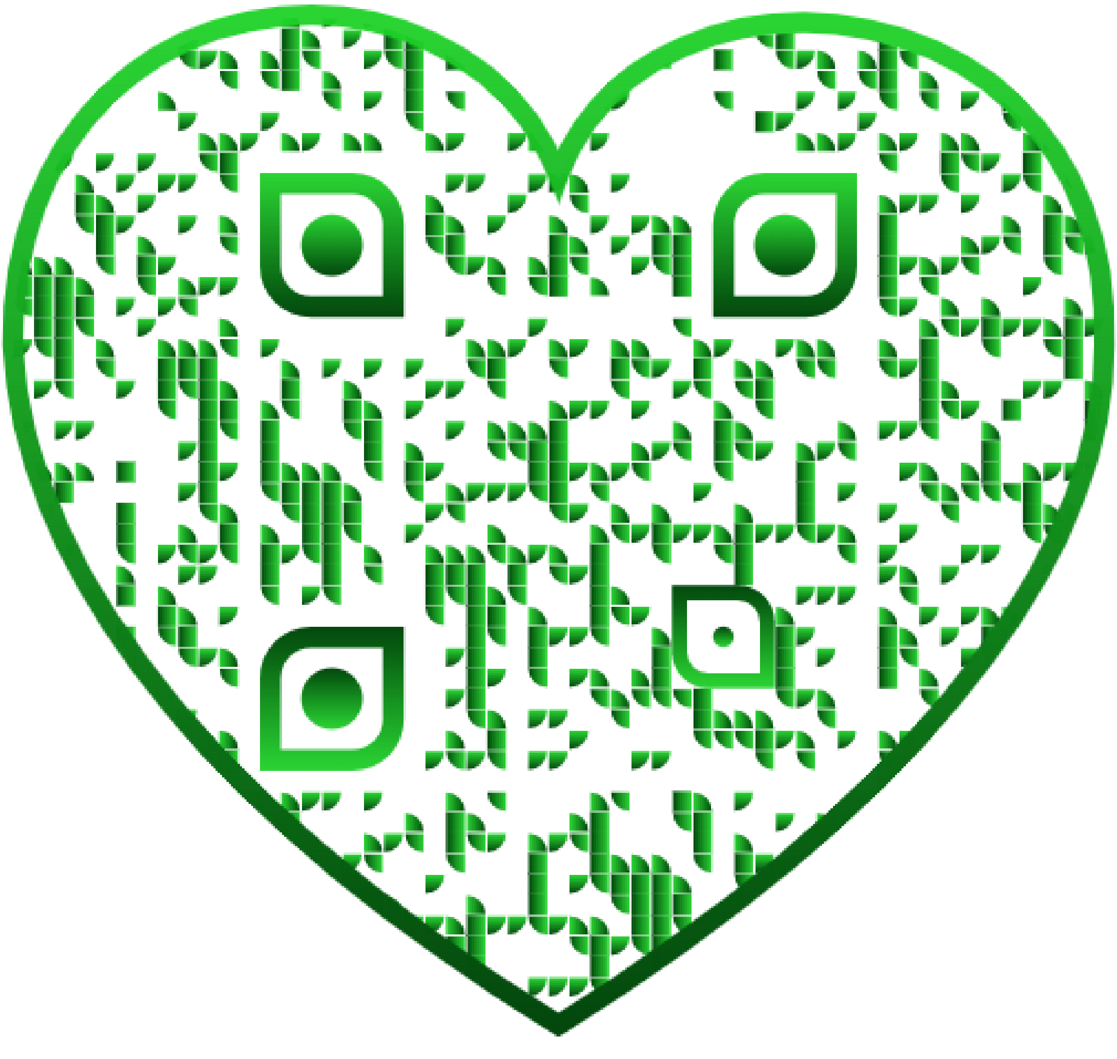
AUGUST
2025

Ross Balderson's Newcastle 1899



Making Trees, Manildra's rolling stock
Scratch-build a locomotive chassis
Project layout Pt4: Leightonwood
Reviews • Mailbag • AMRM News

Issue 373 Vol. 32 No.4
ISSN 0045-009X



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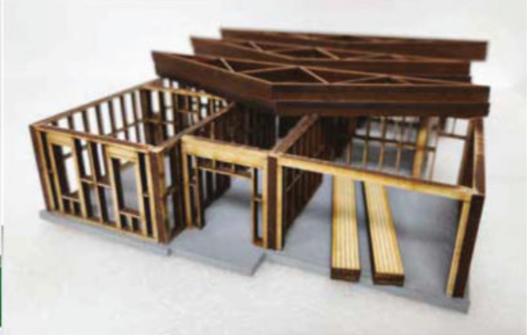

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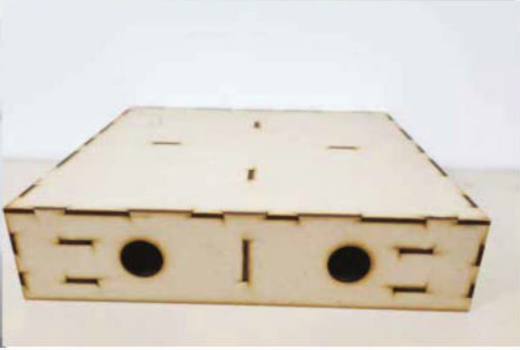

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COMMENT

By Scott Fitzgerald

Patience is a virtue and 'Now Now' culture

Getting a new model from a model manufacturer, can release an amount of dopamine for the modeller. This dopamine release can be from the satisfaction that the model meets expectations, in shape, colour and operation, and model manufacturers are happy to provide this in the form of regular releases of r-t-r models.

When the delivery of r-t-r models is delayed, then modellers can go from 'meh' to 'but why?' quite quickly, almost like a drug addict not getting their fix.

For manufacturers, constant communication can be a double-edged sword, they release information and timelines based on known, but sometimes incomplete information, this could be considered a calculated risk. Sometimes this risk pays off and everything goes smoothly, however at some point this all could change as a latent failure is discovered and to fix an issue might lead to delay of the project until it's fixed.

What modellers don't seem to understand is these projects have very long lead times, and they are fraught with danger as hidden problems can appear in any phase of production and or delivery. One phrase I hear repeatedly is 'how hard can it be?' well, only those that work in the industry truly know the level of complexity and on the spot decision making required to get their product to market.

This is the next double edge sword for manufacturers. How to deal with fixing these problems, some of these are easy to solve others are more complicated, the further down the production timeline an error is found the more costly it can be.

Manufacturers are then faced with the un-enviable task of rectifying the problem, usually incurring additional costs and longer production timelines in the process, or do they accept the failure as it is and release the product to market with the fault unresolved (high risk)?

Modellers are becoming more detail focused, and to meet this demand manufacturers need to spend more time in the development phase to get a high-fidelity model to market. The more complicated the production, the greater the chance of a hidden problem appearing, and each time they appear usually a delay is incurred.

'Now Now' culture while healthy in terms of creating industry demand and growth, it can reach a breaking point. High-fidelity models, by their design are more complicated, and demand a lot more effort from the manufacturer and oversight to detect problems before they effect the production timeline. When it comes time for a manufacturer to communicate with modellers when a latent failure is discovered, and what they are doing about it, the feedback is rarely positive. Realise it's the manufacturers working to get modellers what they have demanded in terms of a high-fidelity model. To deliver this level of fidelity, it can be a rocky, difficult, and sometime sole crushing road from initial design – production to delivery.

Tariffs 2.0

We discussed the United States of America tariffs in issue No. 370 February 2025. Now, first things first, model railways is a hobby, a relaxation - de-stress tool, and not a place for politics.

Almost all industry and international commerce rely on stability and certainty. Anything that disrupts this stability, has two effects:

- Reduction of consumer confidence. If a consumer does not know the end price, they are less inclined to order a model.
- When consumer confidence drops, model manufacturers need to adjust their production and or their production schedules.

The recent roller-coaster ride of tariffs between China and the USA has created instability and uncertainty in the market.

As the big manufacturers from the USA change their schedules based on revised consumer confidence, any blip in USA model production, will be felt at the factory. Time will tell if Australian manufacturers will be effected.

Give us feedback at: amrmeditor@outlook.com

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The Annual Membership Fee for SCMRA is $66.00 from March to February, which includes the membership data pack. Applications must be received by the first of the odd month to meet our mailing list deadlines. For applications received between the 2nd September and the 2nd January the Half Annual Fee is $33.00 (does not include October issue of AMRM). All fees are GST Inclusive.
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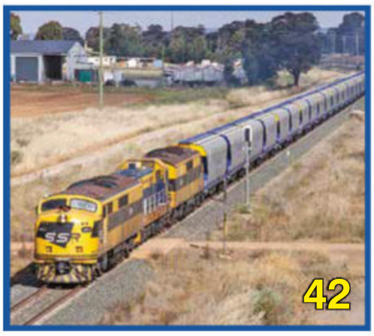

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ON THE COVER

Locomotive No. 2508 and 298 shunt the yard on Ross Balderson's Newcastle Railway Station 1899 layout. Photo Mark Jesser

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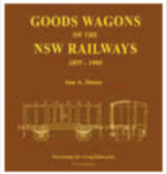

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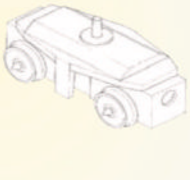

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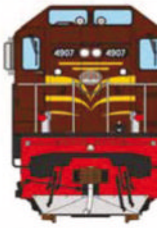

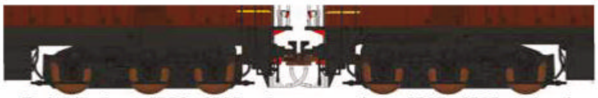

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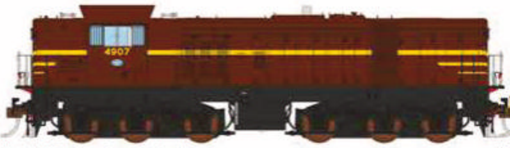
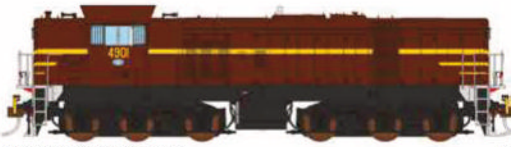
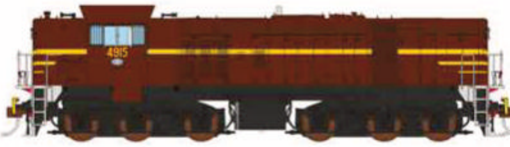


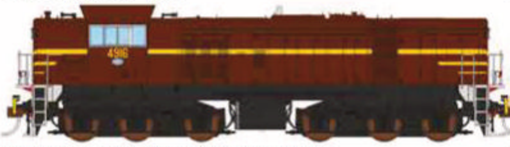
49-1 4907 Indian Red - As Delivered



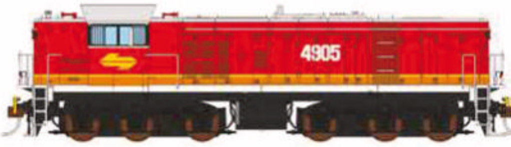
49-5 4901 Indian Red - 1980's



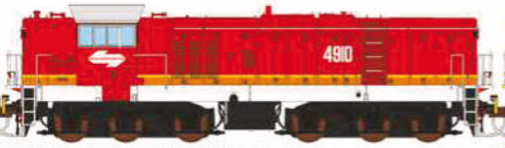
49-7 4915 Indian Red - 1980's



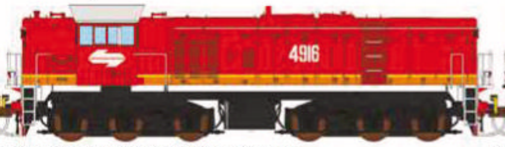
49-8 4916 Indian Red - 1980's with Aluminum Windows



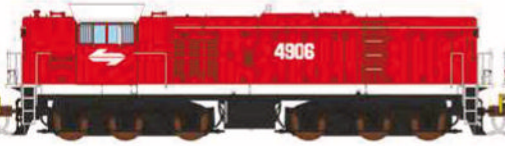
49-9 4905 Candy - Yellow L7 with Grey Roof



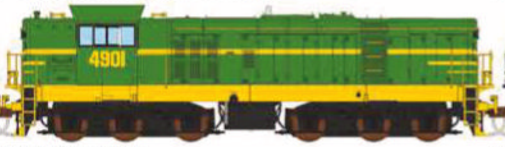
49-12 4910 Candy Terror - White L7 with Red Roof



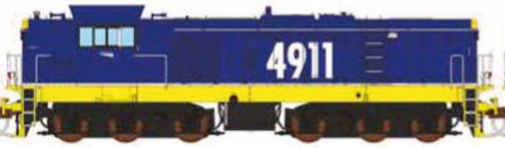
49-13 4916 Candy Terror - White L7 with Red Roof



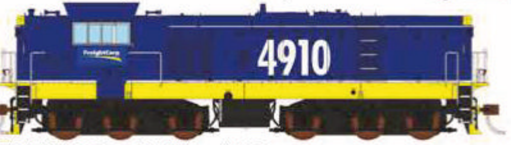
49-14 4906 Red Terror - White L7 with Red Roof



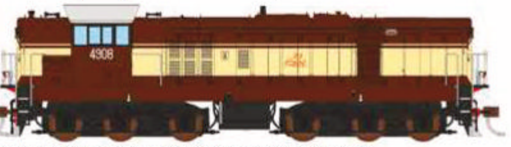
49-15 4901 Green/Yellow



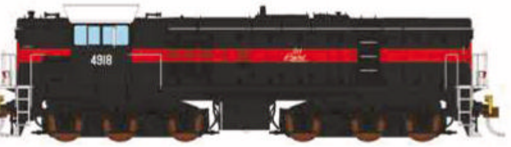
49-17 4911 Freight Rail - Blue/Yellow with FR Logo



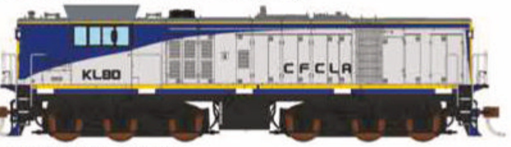
49-18 4910 FreightCorp - Blue/Yellow with FC Logo



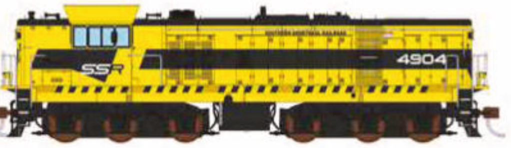
49-19 4908 3801 Limited - Indian Red/Cream with Waratah Logo



49-20 4918 3801 Limited - Black/Red with Clyde Logo



49-21 KL80 CFCLA - Blue/Silver



49-23 4904 SSR - Yellow/Black

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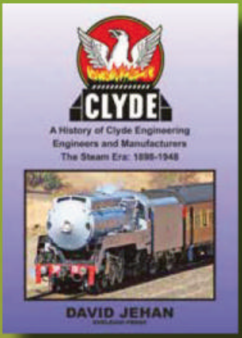
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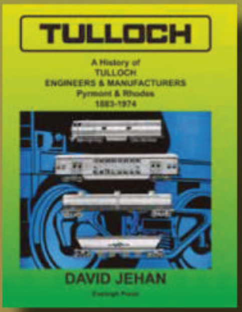
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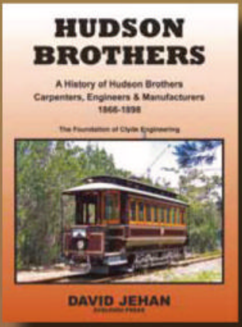
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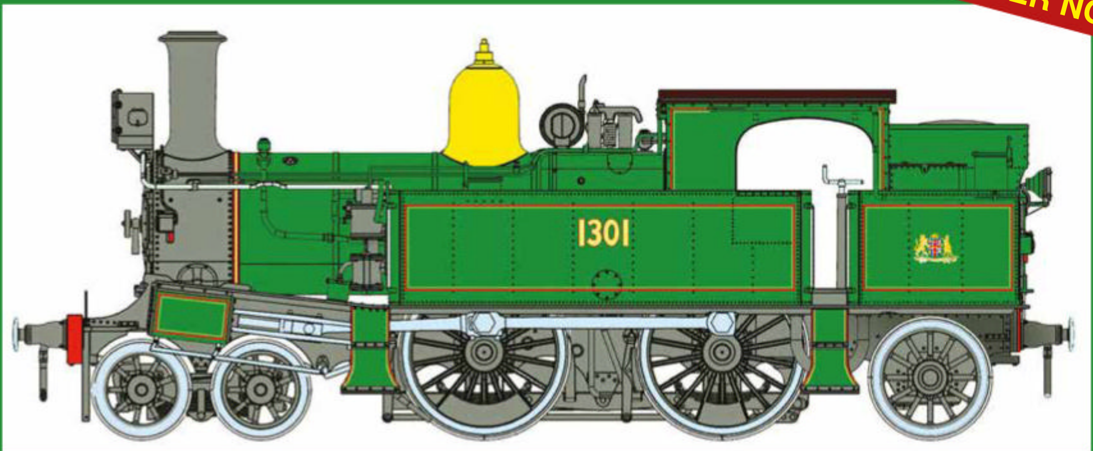

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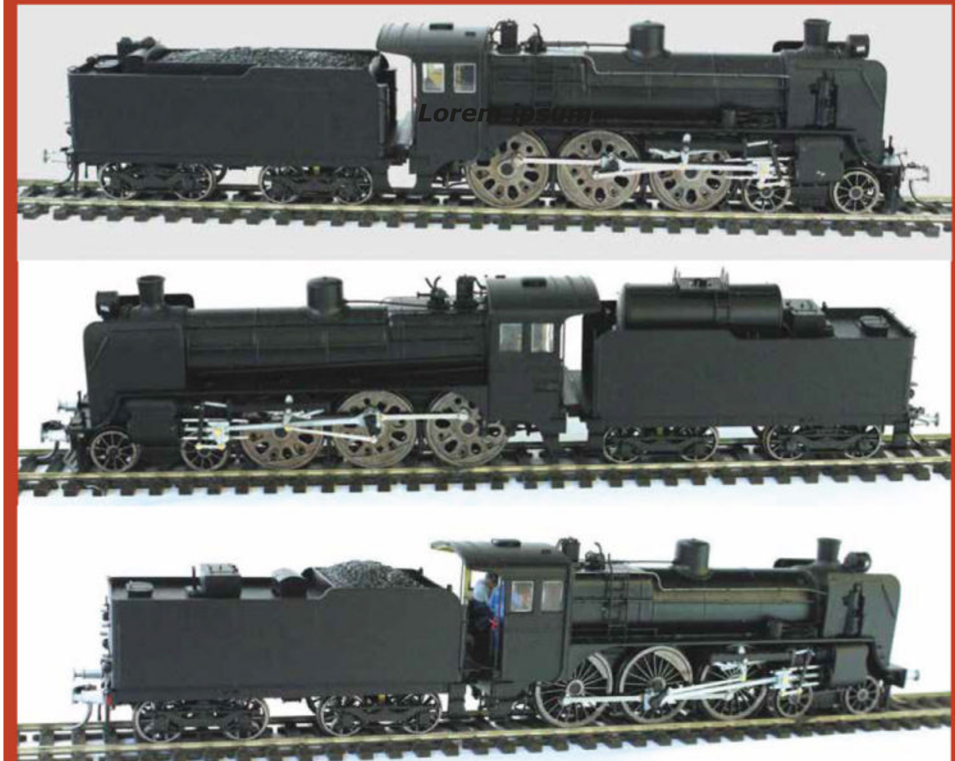

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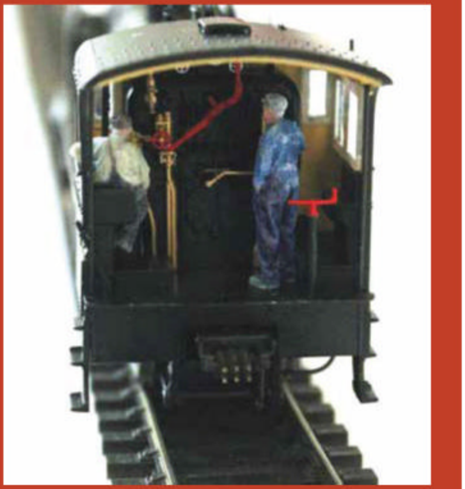

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Clyde – The Diesel Era
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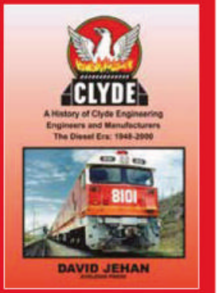

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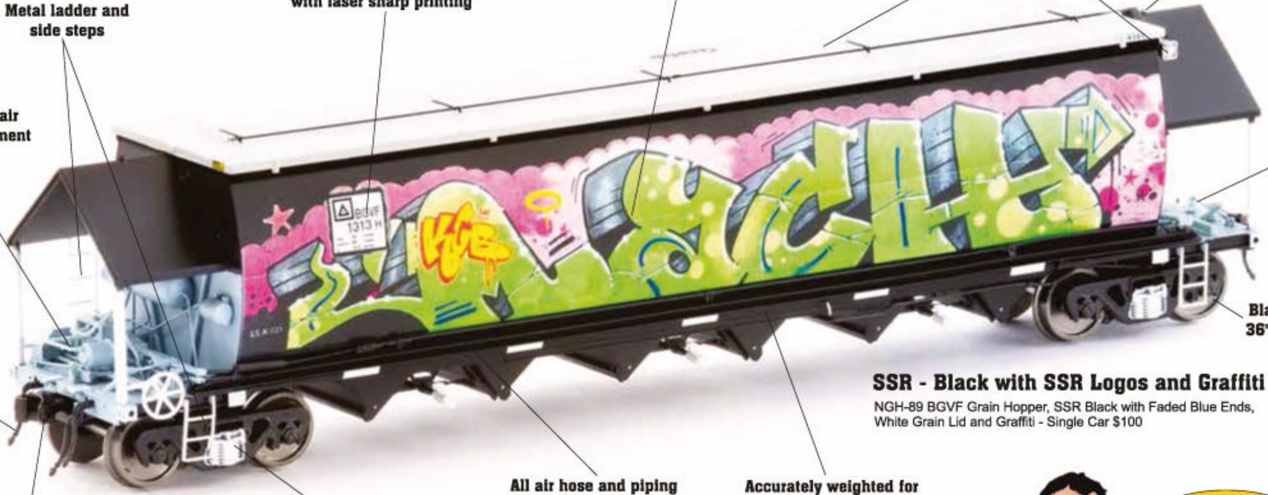

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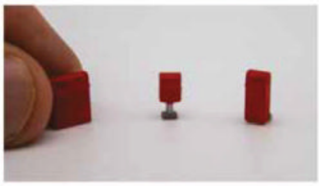

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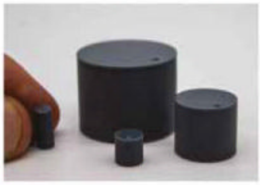

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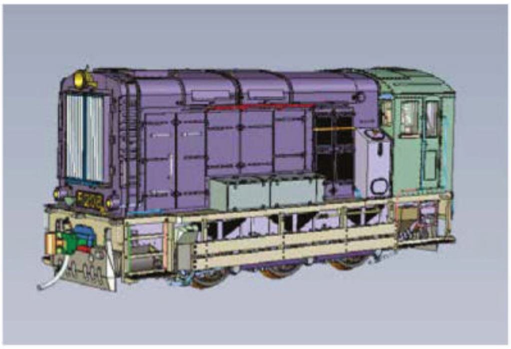

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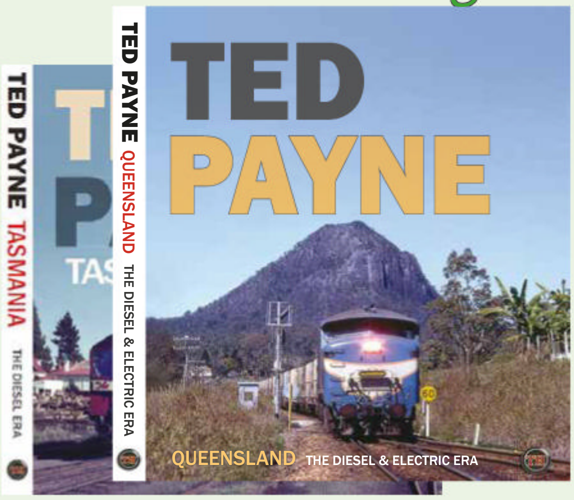
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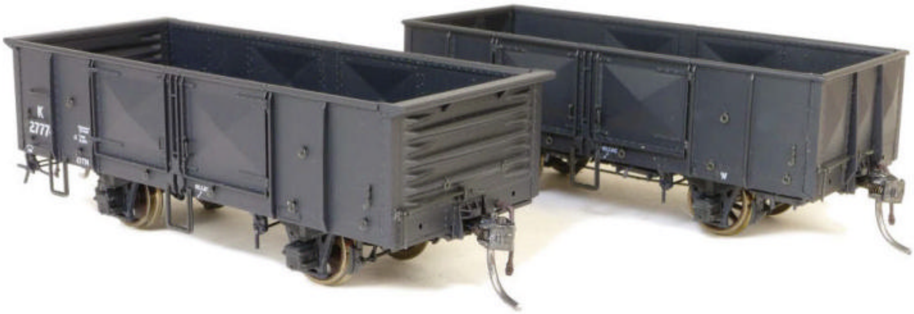

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Newcastle NSW 1899

Ross Balderson creates a museum quality layout in N scale.
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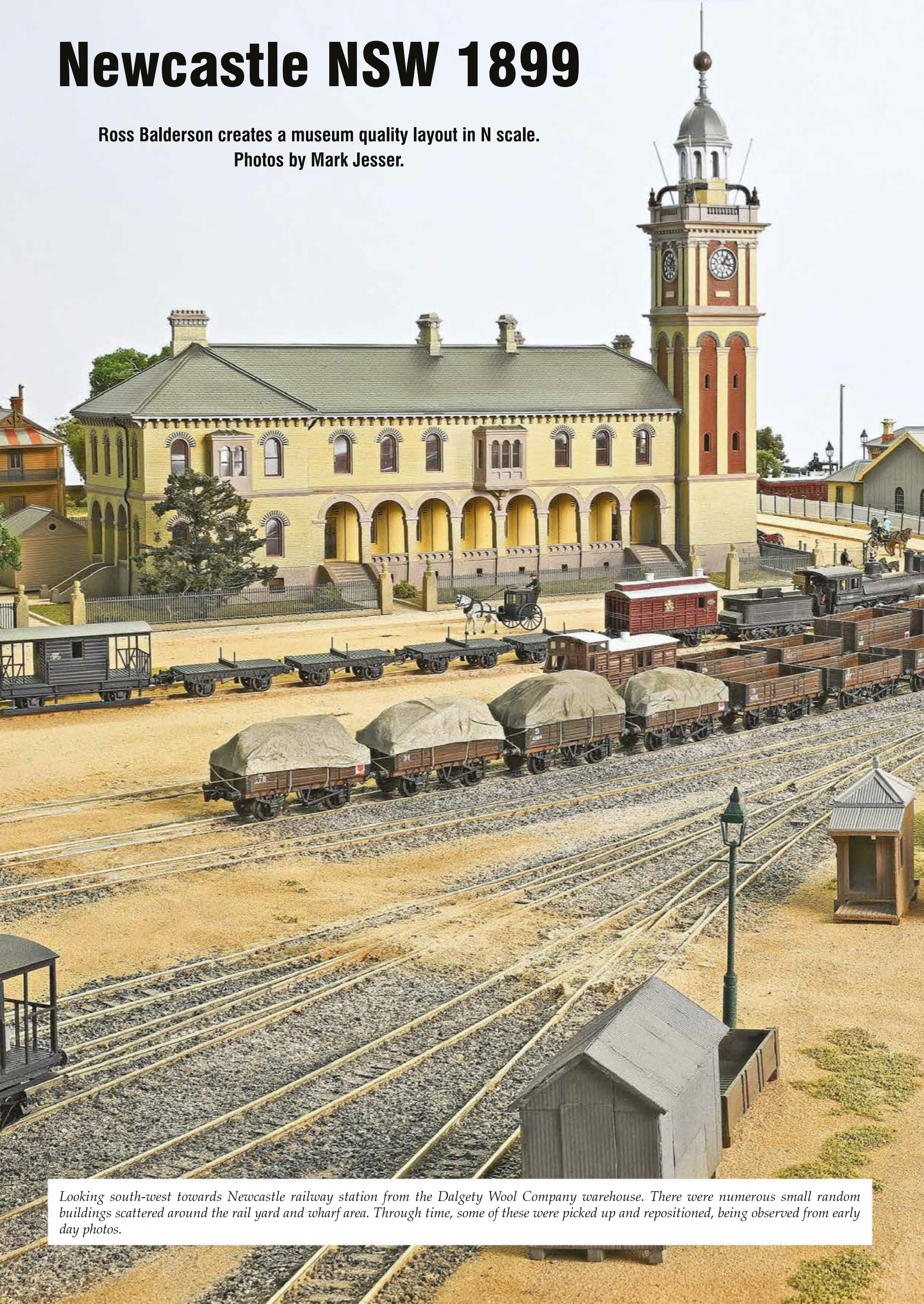
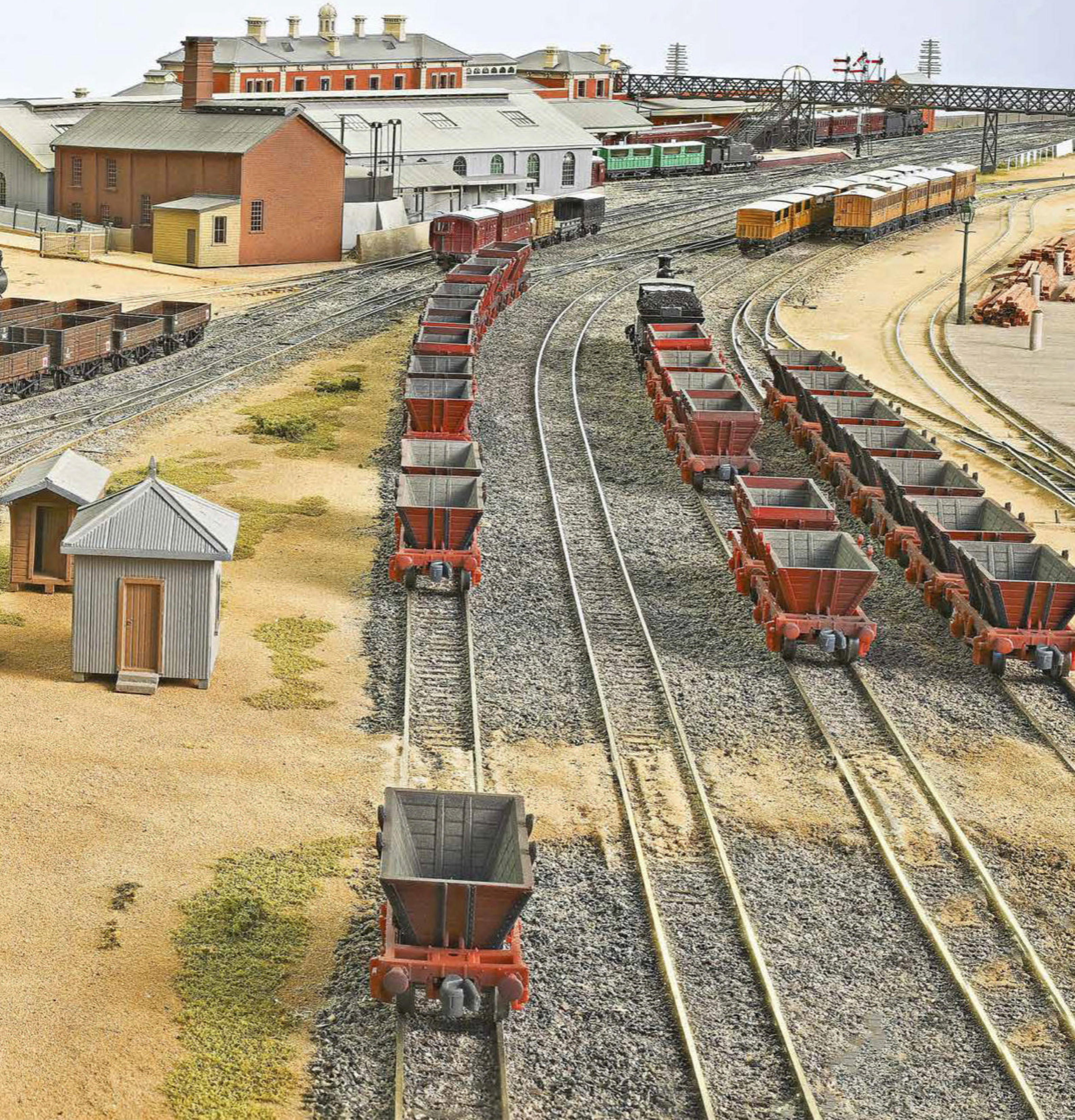


Looking south-west towards Newcastle railway station from the Dalgety Wool Company warehouse. There were numerous small random buildings scattered around the rail yard and wharf area. Through time, some of these were picked up and repositioned, being observed from early day photos.

It was only a matter of time before the commencement of another large modelling project would start up, taking over my workshop as well as a large portion of my life again. The planning of this next project had been in the making well prior to building my previous N scale layout of Sydney Central station. I had been researching the early days of Newcastle for many years after being inspired and captivated by a photograph published on page 101 of the book titled 'Locomotives of New South Wales 1855-1980' volume one – compiled by Alex Grunbach and the ARHS NSW Division. The photograph was of a view overlooking one of the Newcastle railway station's platforms and across to a very busy goods yard highlighted by numerous sailing ships moored along Queen's wharf. My intentions were to create Newcastle first up, but several friends convinced me to start off with Sydney Central railway station and I'm glad it worked out that way. I have learnt so much from building Sydney Central and it greatly improved my modelling skills in preparation for the finer details of early Newcastle. During my time researching, I found that a famous Newcastle photographer existed in the 1890's by the name of Ralf Snowball. He had a fascination for this city and had produced literally thousands of glass plate negatives of the Newcastle area in the era that I was to model. I hoped that one day I would be able to collect enough detailed photographs and research information to recreate the scene from the book. It turned out that the photograph from the book was taken by another famous early days photographer based in Sydney by the name of Henry King whose work mainly covered the Sydney area but also went as far as the Blue Mountains as well as to Newcastle.



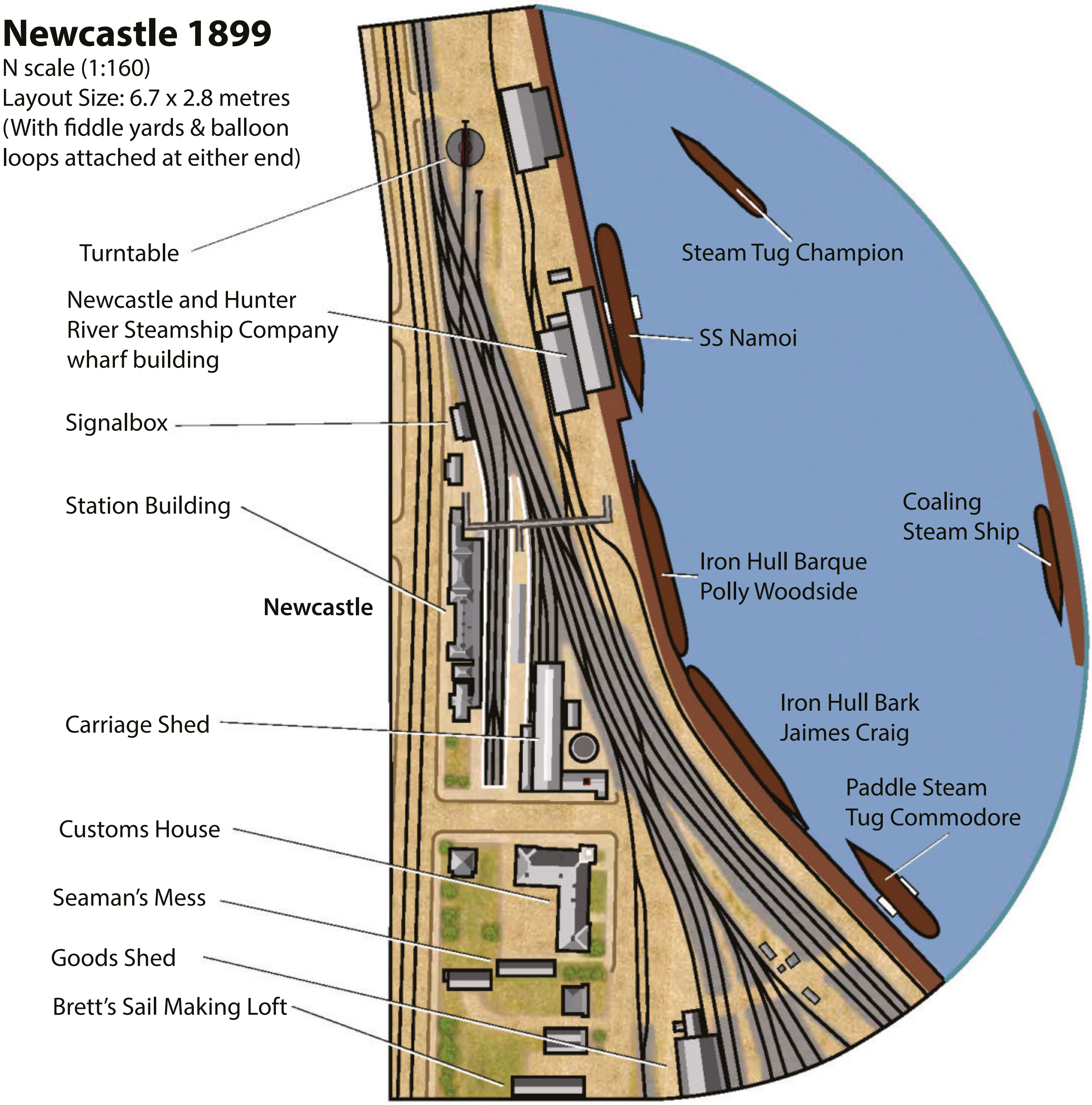
The Commencement of Newcastle

Several early days scaled maps were obtained as well as a print-out of an aerial view of the city centre from Google Earth. The first of many trips to Newcastle was planned and carried out. I gathered up two modelling friends (Steve Curry and Doug Cook) who obliged to join in for the surveying adventure. After several phone calls I managed to get the Newcastle railway staff to allow us access around the station as well as a full guided tour throughout the station buildings. This also included the upstairs areas which were off limits to the public. Ground measurements of the old buildings that still existed as well as the spacings between buildings and roadways were taken. These measurements were obtained using a surveyor's wheel and long tape measure. I was then able to scan and scale the early day maps into Corel Draw and plot in the buildings correctly.

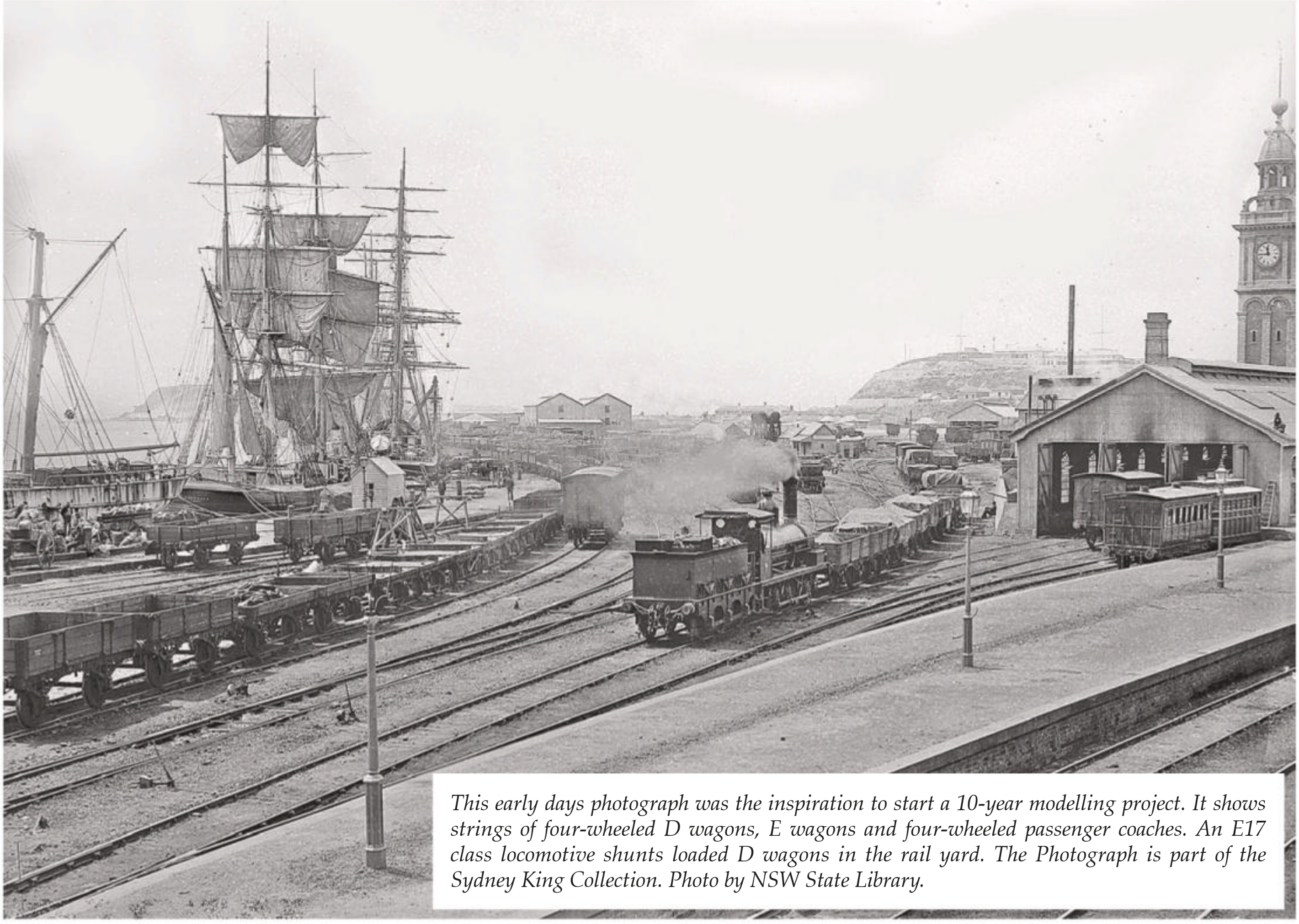
[Editor's note: Any computer-aided drawing tasks mentioned in this article were accomplished using the computer program Corel Draw]

The main shape of the layout was drawn onto the map which included the layout's large, curved backdrop. This assisted with determining how much of Newcastle I could fit in the model scene, how big the layout would have to be, and if it could be transported to model railway exhibitions.

Recruiting the same surveying team, a second trip was carried out measuring the Customs house and its surrounding buildings in detail. Once again, after numerous phone calls and after signing a waiver (in case we fell to our deaths), we were allowed to climb the rickety medie-


Newcastle 1899
N scale (1:160)
Layout Size: 6.7 x 2.8 metres
(With fiddle yards & balloon
loops attached at either end)
Turntable
Newcastle and Hunter River Steamship Company wharf building
Signalbox
Station Building
Newcastle
Carriage Shed
Customs House
Seaman's Mess
Goods Shed
Brett's Sail Making Loft
Steam Tug Champion
SS Namoi
Coaling Steam Ship
Iron Hull Barque Polly Woodside
Iron Hull Bark Jaimes Craig
Paddle Steam Tug Commodore

©2025 Australian Model Railway Magazine, Illustration by Keith Pennington.



This early days photograph was the inspiration to start a 10-year modelling project. It shows strings of four-wheeled D wagons, E wagons and four-wheeled passenger coaches. An E17 class locomotive shunts loaded D wagons in the rail yard. The Photograph is part of the Sydney King Collection. Photo by NSW State Library.

val-looking timber staircase to the top of the Customs House clock tower where photos of the roofline were taken. It felt quite special being on the outside top platform of the clock tower knowing that we were standing in the exact same place where Ralph Snowball once stood to take some of his photographs over 100 years ago.

There are so many reasons for picking the era of 1899, these include:

- No motor vehicles existed. Only horse drawn vehicles, railway transport and the odd pushbike.
- Shipping was a combination of sailing ships, steamships, steam ferries and steam tugboats.
- The Watt Street extension on the Customs House was completed in 1899.
- My grandmother was born in 1899
- The David Cowan building that was painted onto the backdrop remained in its original condition until it burnt down on New Years Eve 1899
- Commencement of the Boer war in South Africa occurred from 1899. Many of Australia's troops were trained at Newcastle's Fort Scratchley, and some were transported by ship from Queen's wharf for the war. Fort Scratchley was therefore added to the painted backdrop of the layout
- 1899 sounds a lot older than 1900

Things to be scratch-built included:

- All city building structures
- Railway infrastructure – footbridges, semaphore signals, telegraph poles, fencing and gates, turntable and ashpit
- Producing 50 scratch-built points and five crossovers as well as an early style three-way point
- Horse drawn vehicles
- Newcastle's wharf and warehouse buildings
- Ships and tugboats
- Lighting for buildings, station platforms, ships and the wharf
- Railway locomotives, coaches and goods wagons
- Steam trams and trailers
- All the structures that existed in the era of 1899

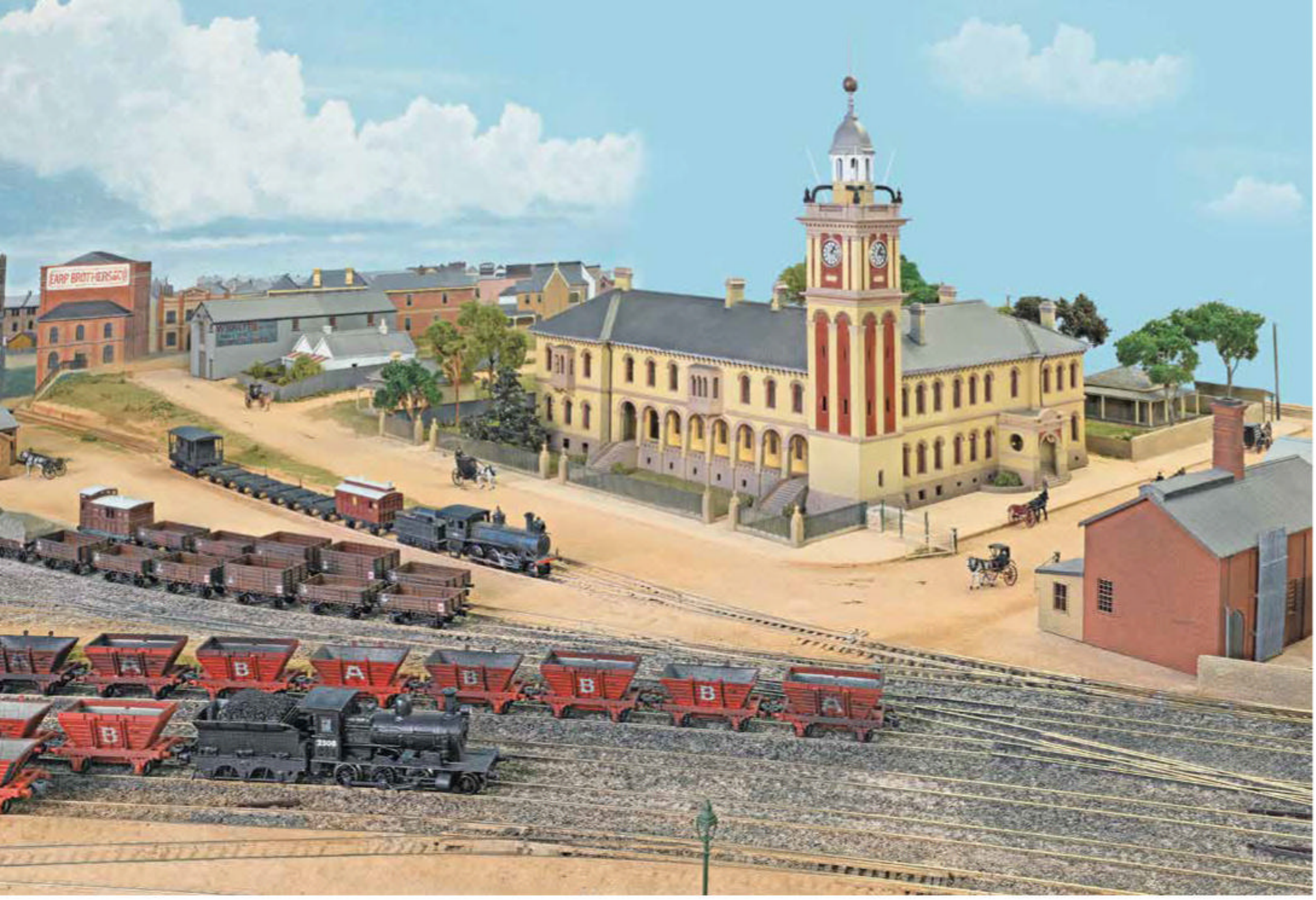
Once all of the building measurements had been collected, the structures were redrawn using Corel then printed off in colour and used as an accurate scaled modelling reference to assist while constructing the buildings.

The Customs House

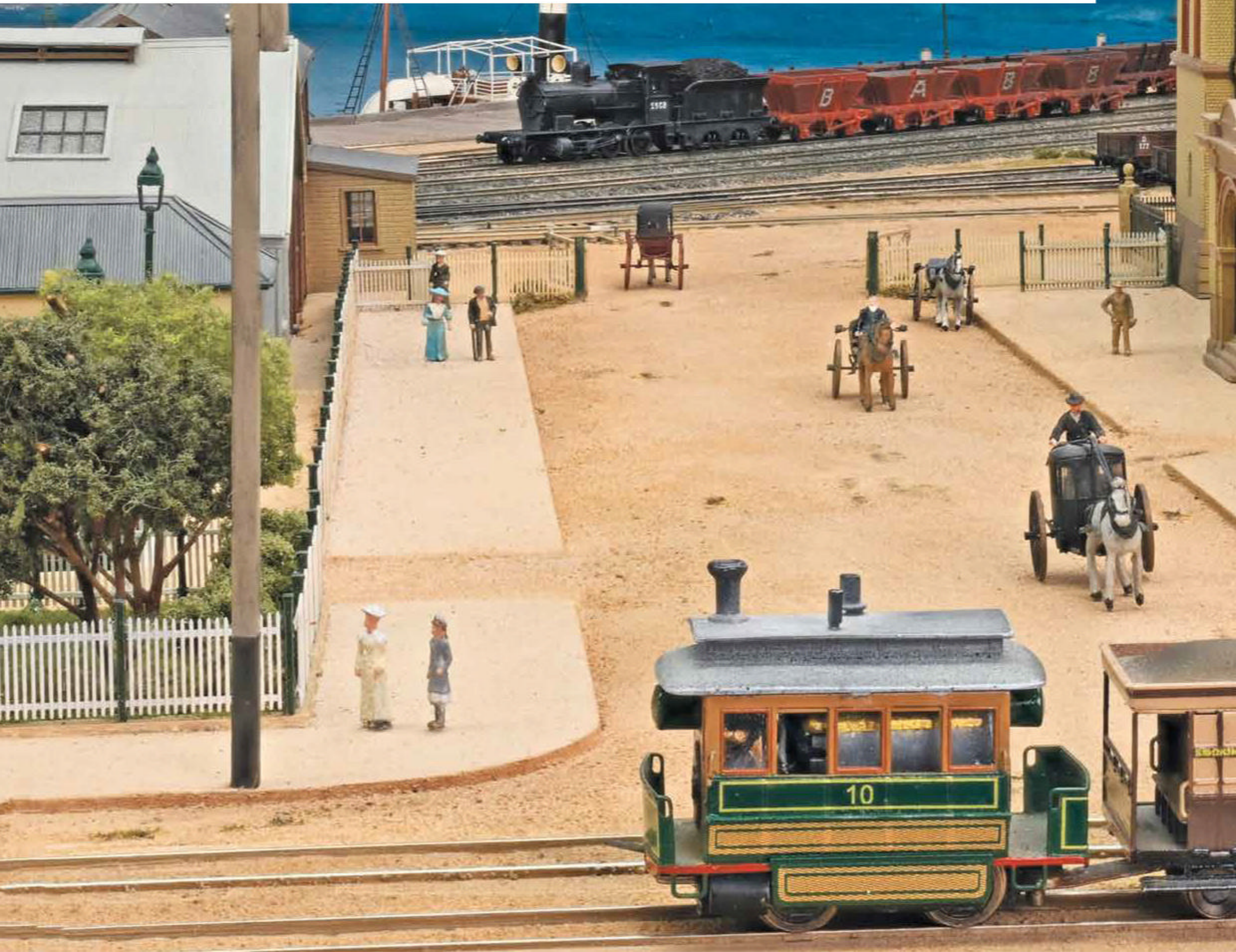
This was the first structure to be built for the layout. It was the most complex of all the structures with its inlayed brick and stonework around the door and window arches. I thought if I could create the most difficult of all the city buildings first, then all the rest would become easier. The outer walls of the Customs House were produced from brick patterned styrene glued to a smooth styrene inner wall. Brick arches over the windows were produced by using a handmade brass template to draw around and then cut out above each window. Using the same template, individual arches were marked and cut out from smooth styrene. These were inserted into the brick walls and then painted the same colour as the wall. An arched brick pattern that matched the original was drawn in Corel as black and transparent then printed off onto decal film, when applied to the building the pale-yellow colour of the brick wall showed through the transparent part of the decal for a perfect colour match. The walls and decals were then sealed with varnish followed by an application of 'Dull Coat'.

The eaves of the Customs House had carved corbel stones located at the top of each wall. These were recreated from two pieces of styrene, that were routed into shape on the Dremel router table. In total there were over four hundred and fifty pieces of styrene that went into making all the corbel stones.

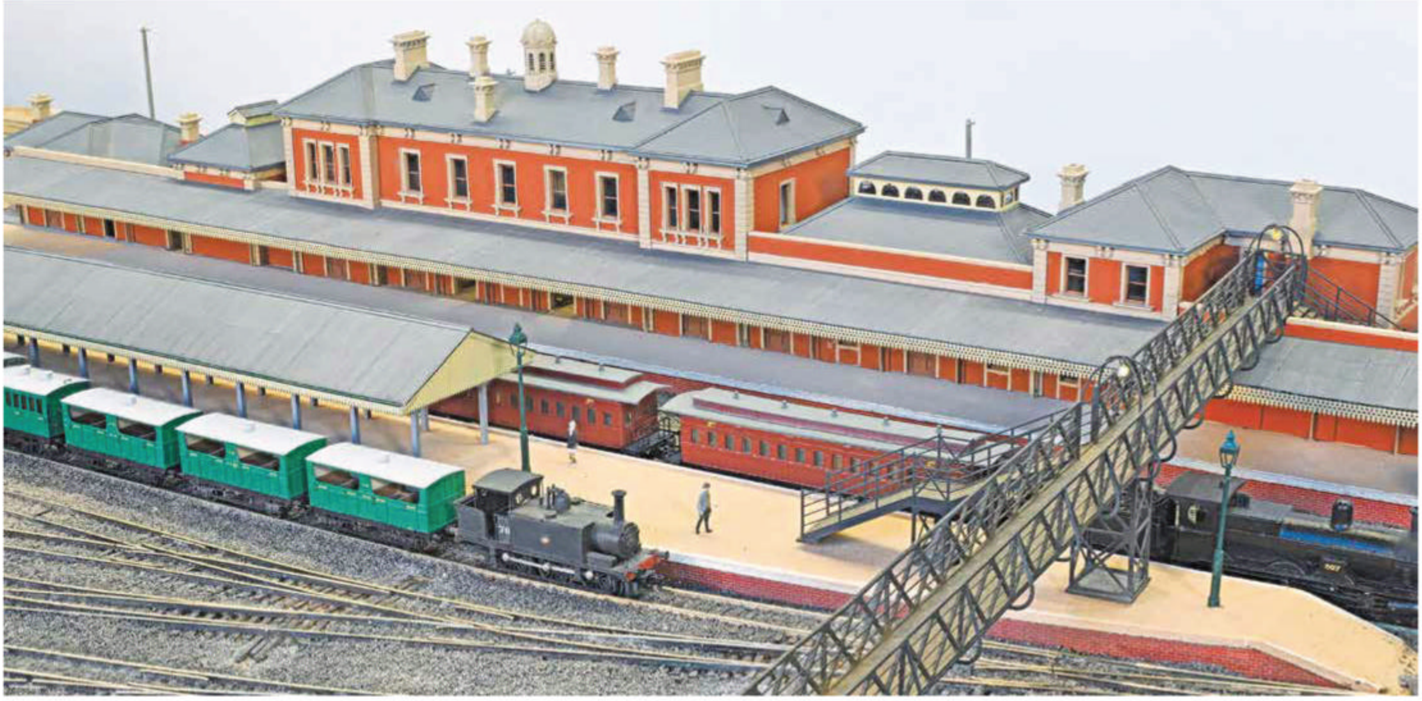
The clock faces were measured during our expedition up the clock tower. These were also drawn in Corel then photo etched. The clock hands were etched and fitted separately to give a three-dimensional finish to the clock faces.

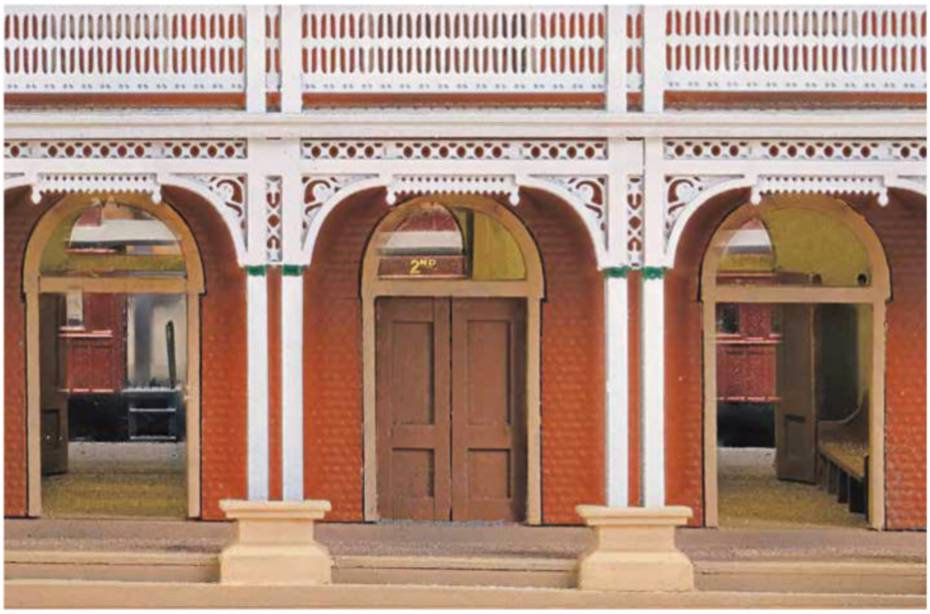

EARP BROTHERS & Co
2508

Locomotive Z2508 (from the B205 class) is busy shunting four-wheeled coal wagons while K class No. 298 simmers with a small rake of four-wheeled E wagons and a prison van. The Customs House dominates this scene.



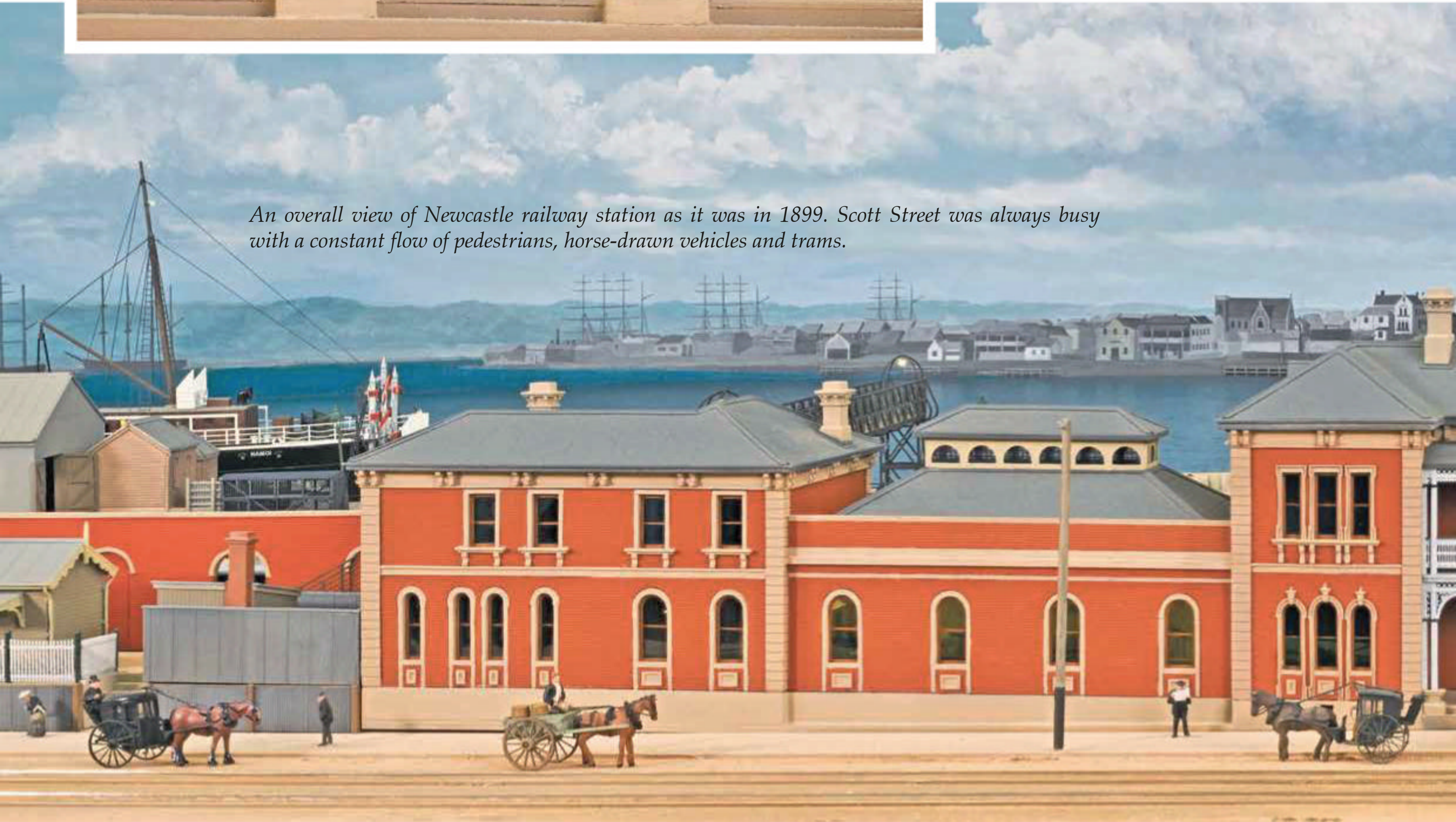
Scott Street was always a busy location with steam trams coming and going, picking up and dropping off passengers. There are early day photographs showing two and even three trailer cars being hustled through Newcastle's streets.





▲ *Looking from the wharf area across the footbridge, Locomotive No. 70 (from the N67 class) is ready with a local passenger service on platform three. P class No. 507 is preparing to head north with its rake of FA passenger coaches.*

◀ *This is the exact pattern of the ornate ironwork for Newcastle station's street veranda that has been accurately drawn to scale and photo etched as four layers of brass. Looking through the waiting room doors of the railway station, a set of 2nd class FA coaches waits on platform two.*



An overall view of Newcastle railway station as it was in 1899. Scott Street was always busy with a constant flow of pedestrians, horse-drawn vehicles and trams.

Newcastle railway station

The station had many alterations and extensions throughout its time. It started off as a well-balanced brick and stone structure with separate architecturally matching buildings at each end. These buildings consisted as a porter's room and lamp room with the other being the men's toilets. As the city grew larger, so did the station to accommodate the increasing volume of people and goods. By 1899 the porter's and lamp building was demolished, and a single-story refreshment and dining room was built in its place. Attached to the refreshment room was a two-story kitchen building including five upstairs bedrooms and a bathroom located at the end of the hall. Once again as the volume of railway patrons grew, a greater demand for food was required. The bedrooms above the kitchen were removed and the kitchen was then located upstairs. A dumb waiter lift was installed to deliver the prepared food from the upstairs kitchen to the downstairs waiting staff. The kitchen chimney had also been enlarged to cater for the upstairs cooking facilities. In the 1920s the refreshment room roof was raised, and a second story was added. In time the roof was raised again and a third story to the building was finally added.

Building the station was quite time consuming due to the ornate details of the windows, doorways, stone wall ends and corbel stonework under the eaves. The ornate veranda ironwork on the Scott Street side of Newcastle station was produced as multiple layers of etched brass. A very detailed Ralph Snowball photograph of the veranda was scanned into Corel then traced. Using onsite measurements of the station the artwork was then set to the correct scale. Once etched and soldered together, it was painted and fitted to the model. Much of the station buildings had internal walls and furniture added. The main waiting room had bench seating as well as having a furnished ticket office. The Ladies waiting room had sofa chairs and a 'crackling' fireplace added. The flickering light of the fire was produced from a battery-operated light emitting diode (LED) candle obtained during New Years Eve celebrations. The circuit board and LED lights were removed from the candle and connected to a permanent 12-volt DC supply under the fireplace. The dining room was fitted with enough seating and tables for forty people. In each of the upstairs bedrooms a bed, wardrobe and desk were added. To finish off, many of the rooms including the toilets and stairwell were fitted with warm white LEDs for internal lighting.

Newcastle station carriage shed

There were two large carriage maintenance sheds located at Newcastle; one at the back of the goods area and the other opposite the railway station. The goods area carriage shed still exists today as a covered picnic shelter. It was considerably longer with 24 windows, the other shed only having 13. The longer carriage shed width measurements and roof pitch assisted with modelling the shorter carriage shed. The spacing measurements of the bays taken from the picnic shelter helped determine the length of the station carriage shed. The window positioning was determined using early day photographs.

Railway goods shed

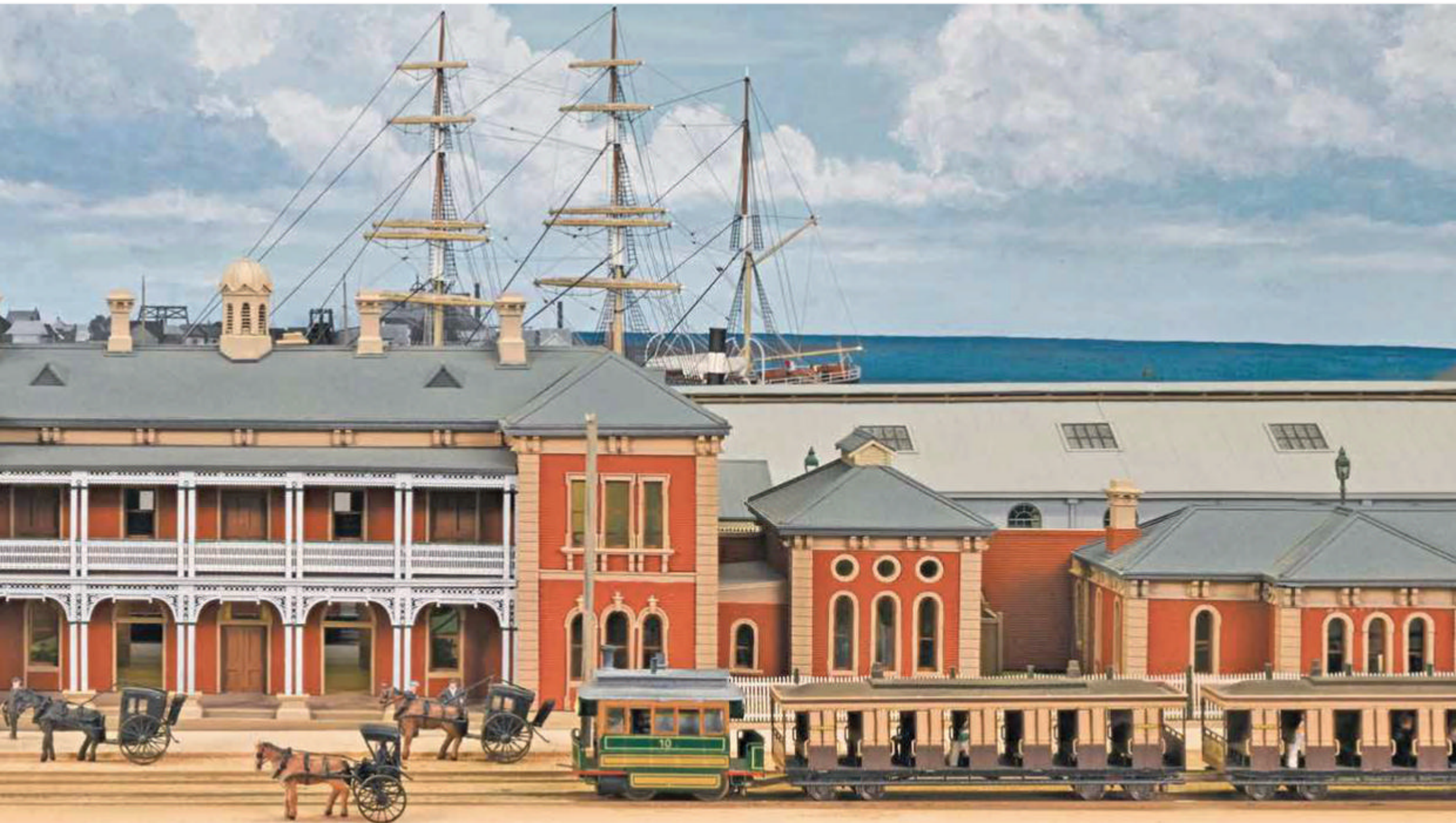
Early day photos of the railway goods shed show six windows facing the harbour with a horse and wagon loading dock on the opposite side. Over time, the shed was extended in length as well as having loading platforms and awnings added on both sides to cater for the higher volume of goods. I sent Greg Edwards an email (whilst at the peak of his stress trying to complete the artwork for his book), asking for the goods shed's possible dimensions. Within a day he had drawn the goods shed and emailed it back to me.

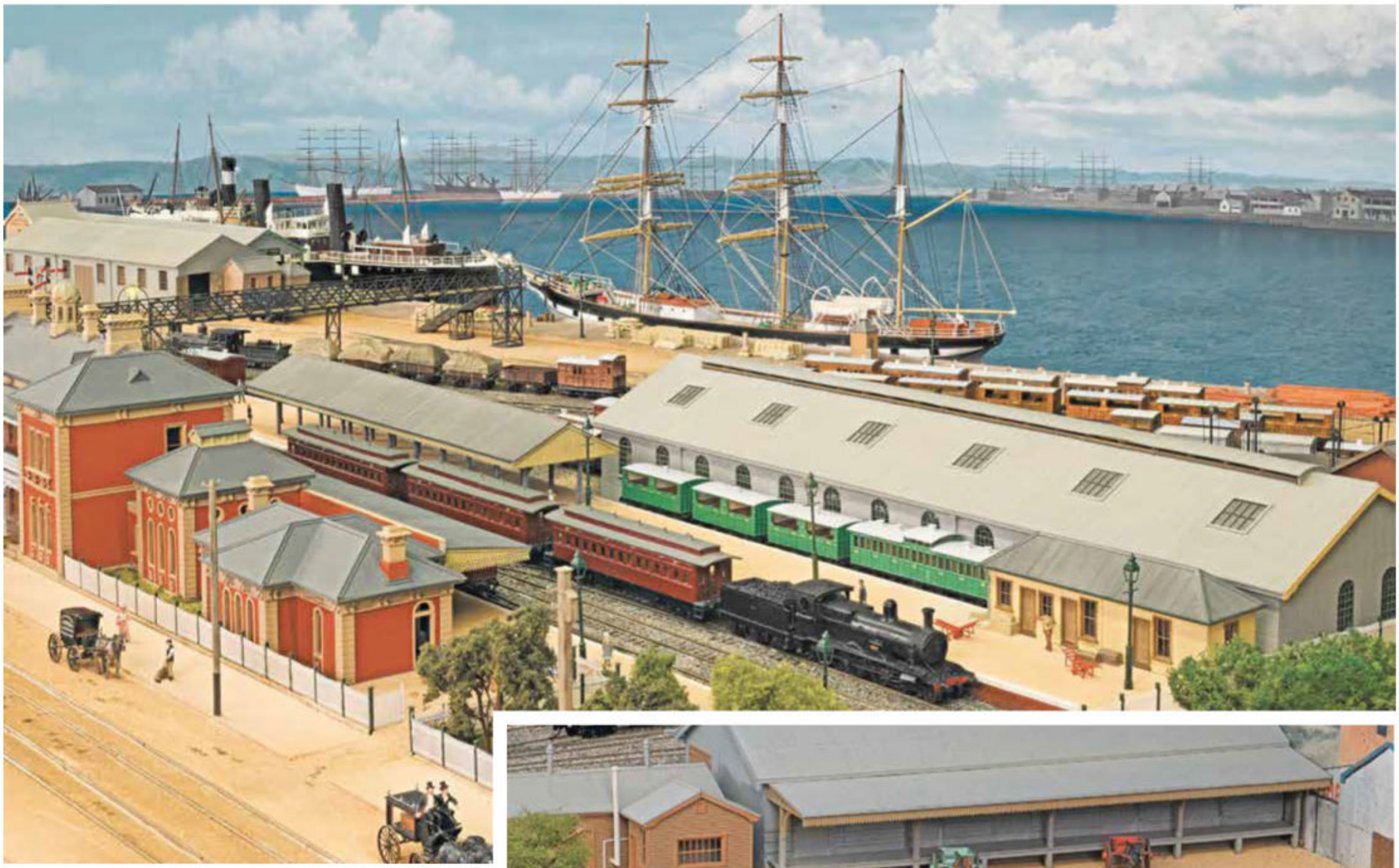
Railway gasworks

Lighting throughout the railway station buildings, including the station platform and wharf lamp posts, were originally gas operated. The railway gasworks building and gasometer were situated just down Watt Street behind the stations carriage shed. This building was extended in the 1950's and then later converted to a bus interchange where it still stands today.

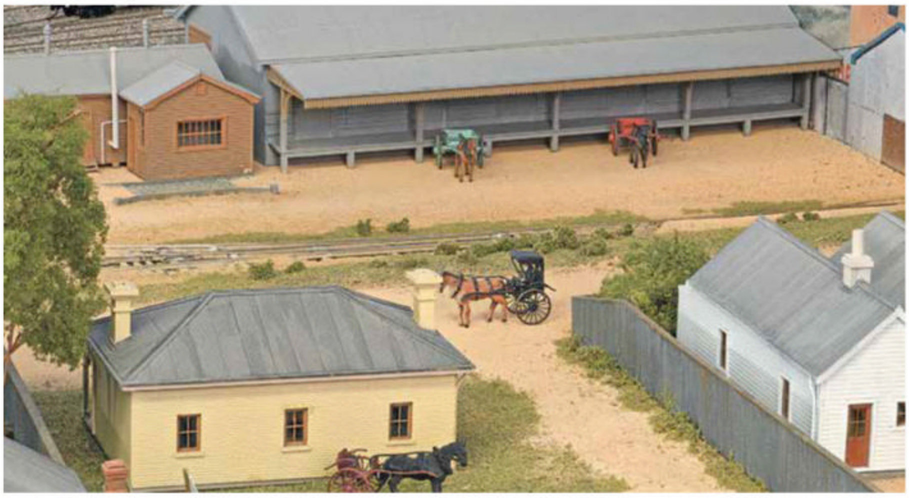
The ground floor section of this building still had the original brickwork showing, which made it possible to gain the original dimensions.

I wanted to understand the operation of how a coal fired gasworks could produce gas. So, I went and visited my old electrical boss (Stan Goodhew) who was a wealth of knowledge on just about everything. He produced one of his old high school science books called 'Everyday Chemistry', 1st addition by J. R. Partington published in 1929. The book gave a full description on the process of roasting coal to make gas as well as showing a detailed diagram. It also covered other bi-products produced from this process.





▲ *A P class locomotive has just arrived on platform two with its daily passenger service. Ships are lined up in the harbour at Queens Wharf while in the distance more ships can be seen at Carrington wharf being loaded with coal.*



A view looking across the backyard of the Railway Pay Master's residence is the Newcastle goods shed. Horse drawn vehicles were always loading goods under the shelter of the side awning. The weighbridge at the goods shed was drawn using early day NSW plans then photo etched in brass.

Station Masters residence

Even though the Station Master's residence was a magnificent building, there was not enough space on the layout to fit it in. So, the building was added to the painted backdrop with a great amount of detail.

Railway Pay Master's residence 1890s

The railway's Pay Master's residence was built next to the Customs House in Bond Street and was originally a single-story building, and was extended to become a two-story building in 1904 with an upstairs veranda. It was a much more substantial looking building but unfortunately the wrong era for my layout, so the single-story version had to be made. The building today has been renovated and is now a restaurant.

Brett's sail making loft

The model scene was just large enough to incorporate Brett's sail making loft that was on Bond Street. There was a large sign painted on its side wall advertising their products. Unfortunately, with my researching I was unable to find what colour the large advertising sign was. So, I chose Blue and recreated it as a decal.

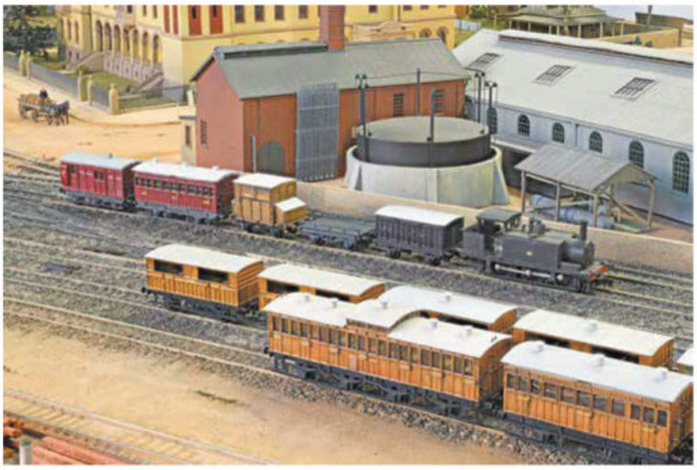
Railway footbridges

In early photos from the 1880s a timber footbridge stood above the Newcastle railyard at the western end of the station, which traversed across from the station footpath in Scott Street to the wharf. The bridge remained there until the early-1890s, when it started becoming too low for some of the newer and larger steam locos. It also became quite rickety and unstable. So, it was removed and Newcastle remained without a footbridge for a short time until a new taller iron footbridge was built.

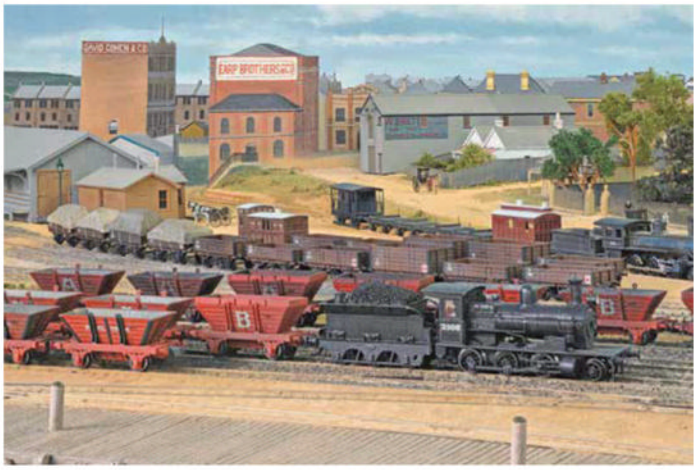
There are enough early photos of Newcastle's railway station precinct to see its growth in progression to match and accommodate the expanding city. Once the new, iron bridge had been erected, the Newcastle station parcels building was demolished in preparation for the construction of the refreshment room and kitchen building.

A second footbridge, located further down the line, was a shorter bridge that crossed over Scott Street's tram tracks, as well as the two incoming railway lines. It had a more common iron brace framework with pedestrian safety wire netting.

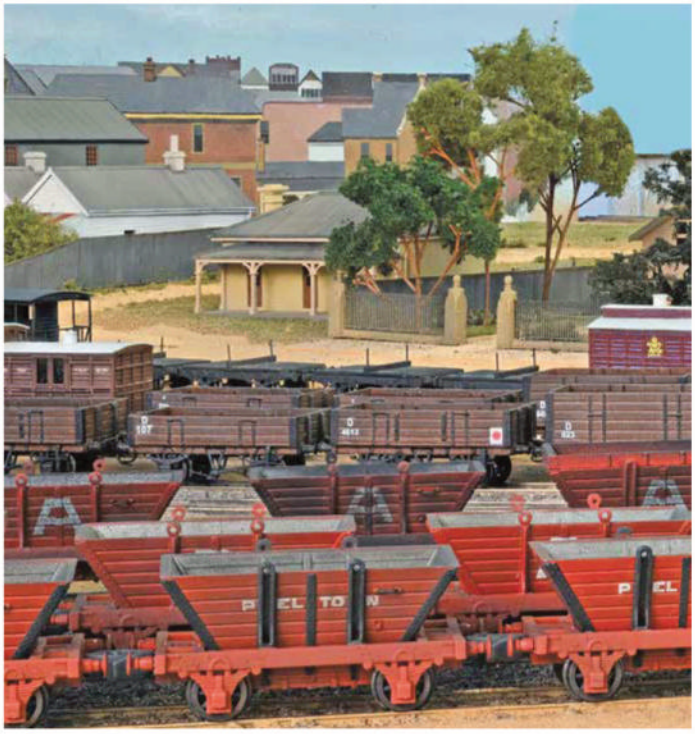
The model footbridges were drawn to scale in Corel. Due to the long length of the main station footbridge, it was etched on an extra-large sheet of 0.3mm nickel silver. Once folded up and soldered together, 0.5 mm brass tubing was rolled into shape to create the pipe hoops that supported lighting above each stairwell. A 0.2 mm enamelled wire was threaded up inside the brass tube to a 0.5 mm surface-mount warm white LED. A small drop of epoxy resin glue was applied to the LEDs creating a round light bulb shape.



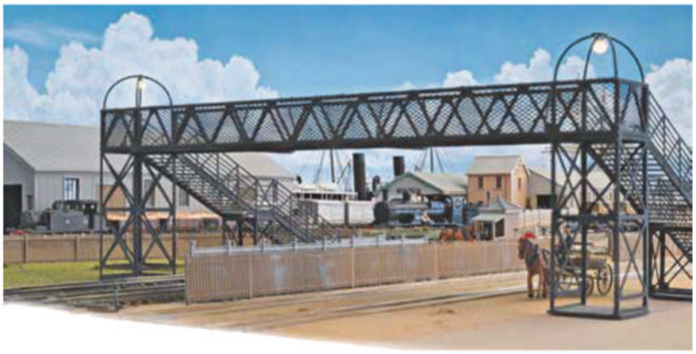
An N67 class locomotive is working a small funeral train, consisting of a four-wheel hearse, four-wheel flat wagon (these were used for carrying horse drawn vehicles), four-wheeled horse box, four-wheeled composite passenger coach and a six-wheeled brake van. The structures located behind the funeral train are part of the railway gasworks which includes the gasometer and a compressor shed.



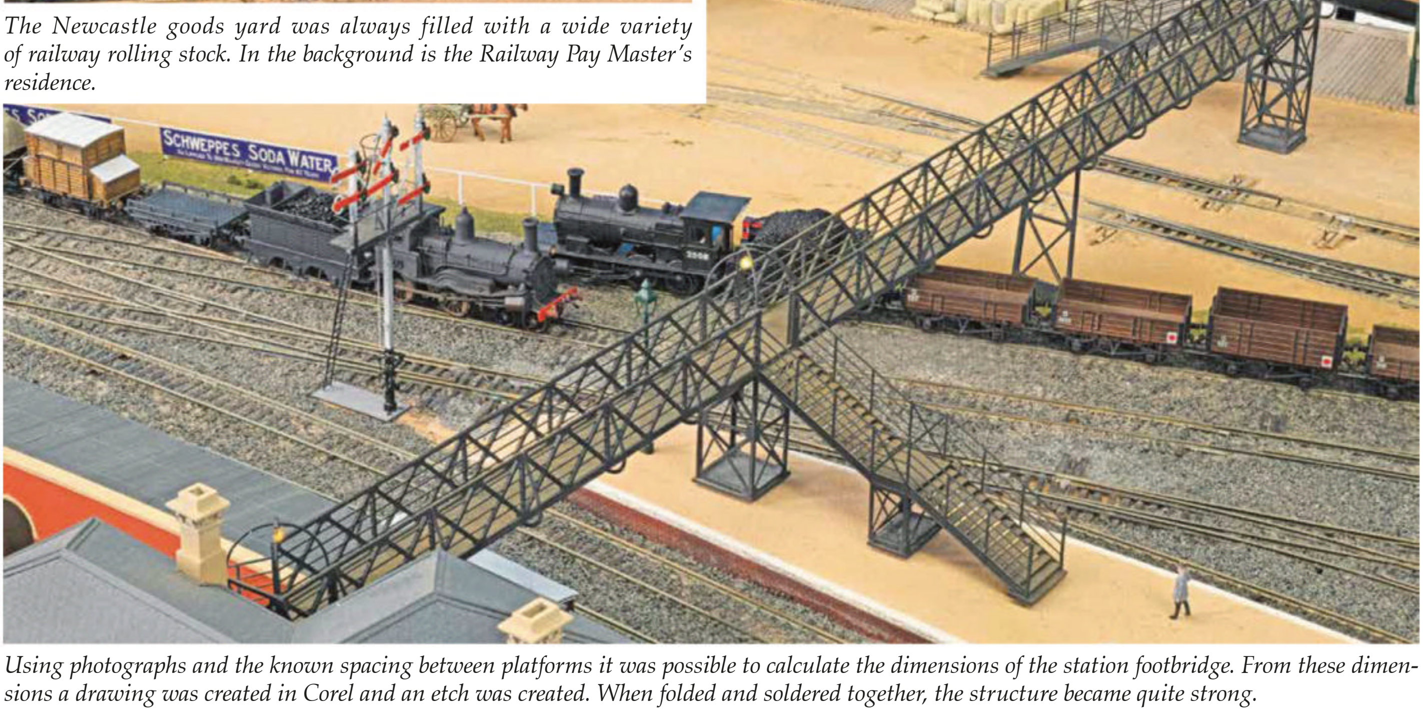
Looking along Bond Street shows a more leisurely pace of activity. The last modelled structure at the end of the street is Brett's sail making loft. The remaining structures and roadway were painted onto the backdrop with the merging of colours adding a large amount of depth to the scene.



The Newcastle goods yard was always filled with a wide variety of railway rolling stock. In the background is the Railway Pay Master's residence.



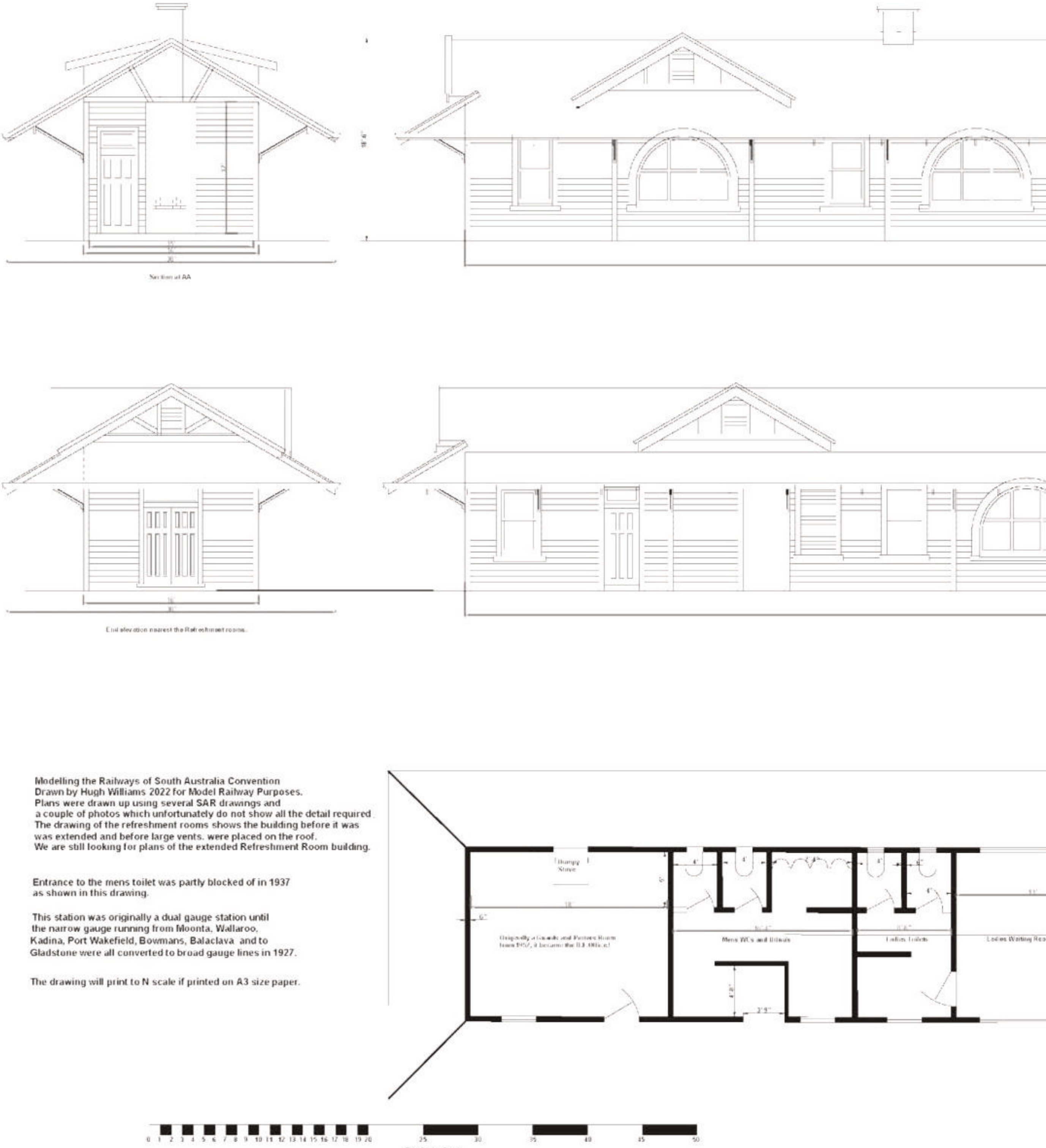
At the western approach to Newcastle railway station was a footbridge that crossed Scott Street and the railway allowing pedestrians to access the wharf area. This was drawn and etched in nickel silver for added strength. The netting was purchased from an embroidery shop. It was cut to size, glued in place then spray-painted an appropriate colour for the era.



Using photographs and the known spacing between platforms it was possible to calculate the dimensions of the station footbridge. From these dimensions a drawing was created in Corel and an etch was created. When folded and soldered together, the structure became quite strong.

Bowmans South Australia: A location to model Addendum

Hugh Williams provides a station building plan to supplement Keith Pennington's location to model article in the June 2025 issue of the AMRM.


Section at AA
End elevation nearest the Refreshment rooms.
Dumpy Stove
Mens WCs and Urinals
Ladies Toilets
Ladies Waiting Roo
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 25 30 35 40 45 50
Scale in feet.

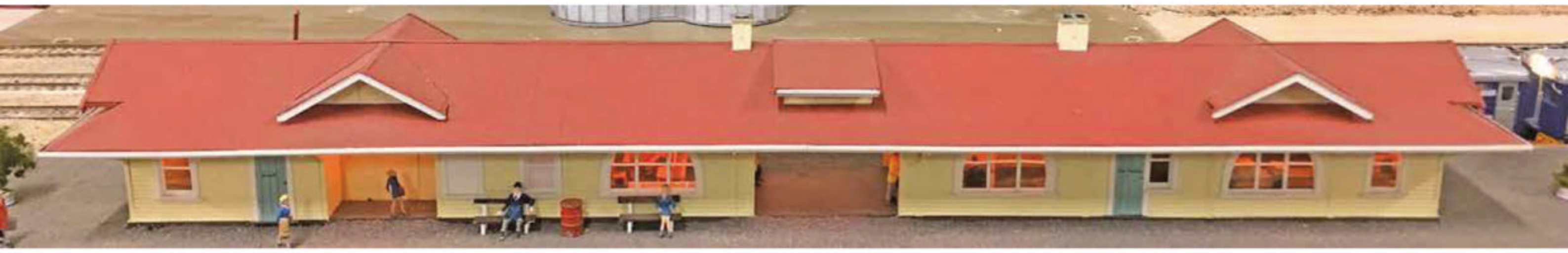
Modelling the Railways of South Australia Convention
Drawn by Hugh Williams 2022 for Model Railway Purposes.
Plans were drawn up using several SAR drawings and
a couple of photos which unfortunately do not show all the detail required
The drawing of the refreshment rooms shows the building before it was
was extended and before large vents. were placed on the roof.
We are still looking for plans of the extended Refreshment Room building.

Entrance to the mens toilet was partly blocked of in 1937
as shown in this drawing.

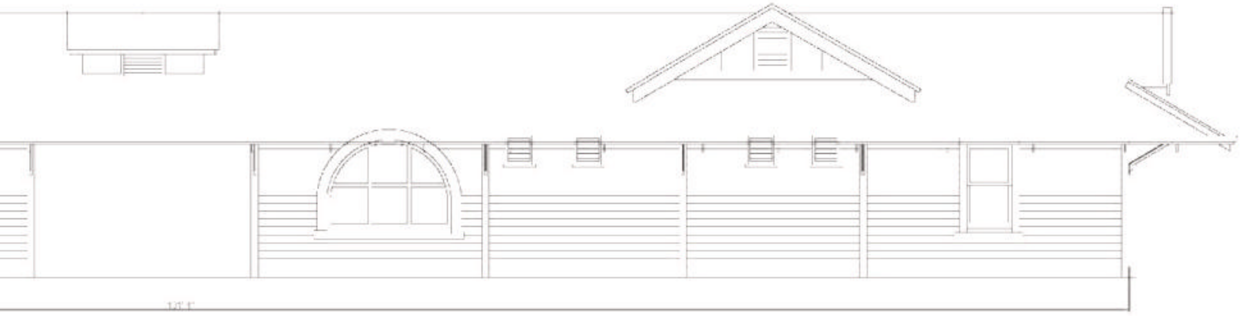
This station was originally a dual gauge station until
the narrow gauge running from Moonta, Wallaroo,
Kadina, Port Wakefield, Bowmans, Balaclava and to
Gladstone were all converted to broad gauge lines in 1927.

The drawing will print to N scale if printed on A3 size paper.

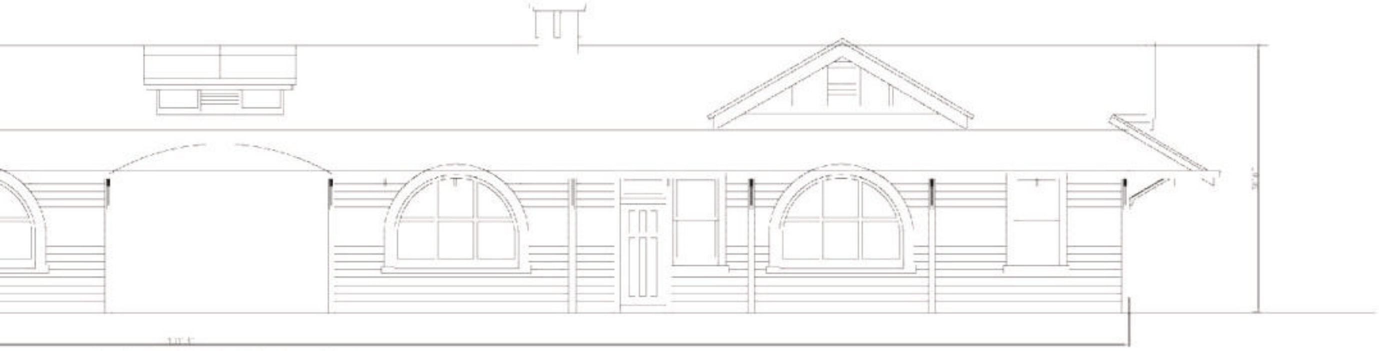
Drawing by Hugh Williams, this drawing and others have been produced by the Modelling the Railways of South Australia Convention. Plans / drawings for around 45 different South Australian Railways (SAR) station buildings are available on CD which also contains around 200 photos of those particular buildings.



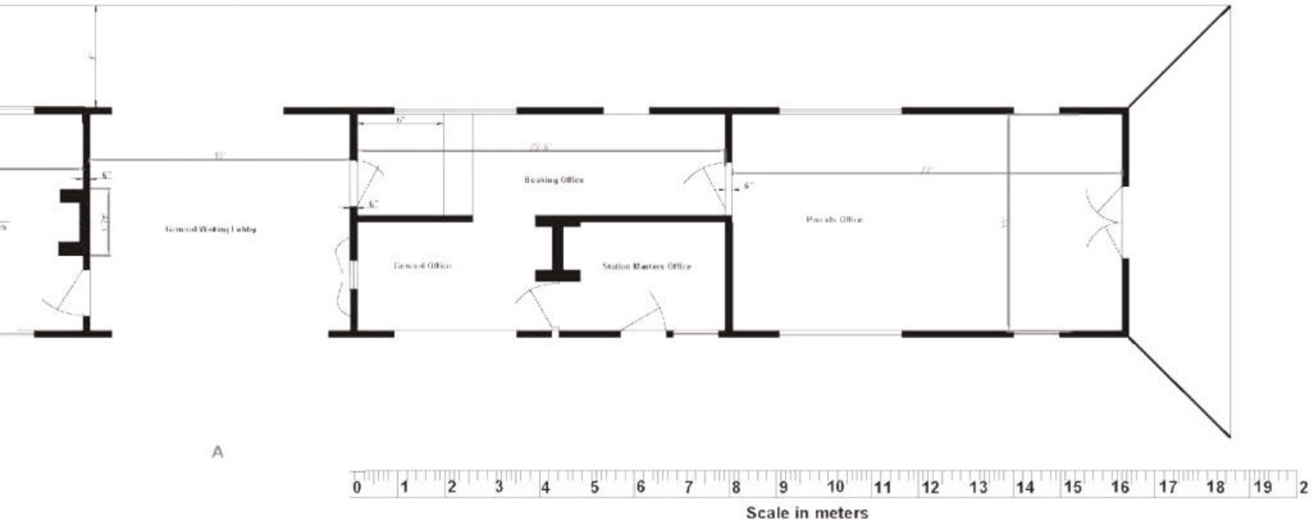
Dean Schluter has built a model of Bowmans station building and this model now sits on the South Australian Railway Modellers Association (SAMRA) permanent layout which is situated in their clubrooms at Dernancourt (a suburb of Adelaide). Photo by Hugh Williams.



Western Elevation - originally facing Narrow Gauge Track

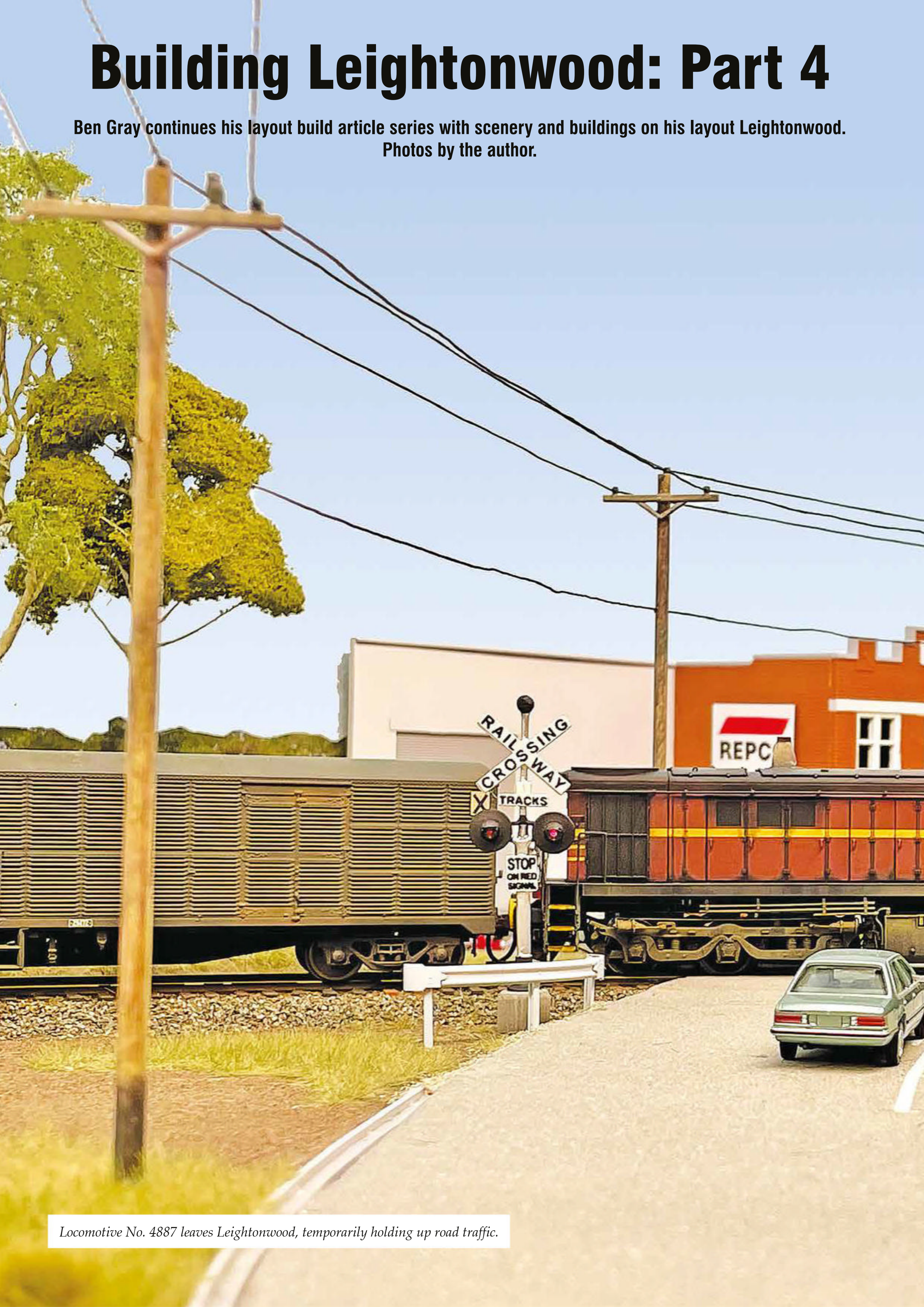


Eastern Elevation which faced the original broad gauge platform.


A
10'
6"
6"
6"
6"
General Waiting Lobby
Booking Office
General Office
Station Masters Office
Parcels Office
A
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
2
Scale in meters

Building Leightonwood: Part 4

Ben Gray continues his layout build article series with scenery and buildings on his layout Leightonwood. Photos by the author.


RAILWAY CROSSING
X
TRACKS
STOP ON RED SIGNAL
REPC

Locomotive No. 4887 leaves Leightonwood, temporarily holding up road traffic.

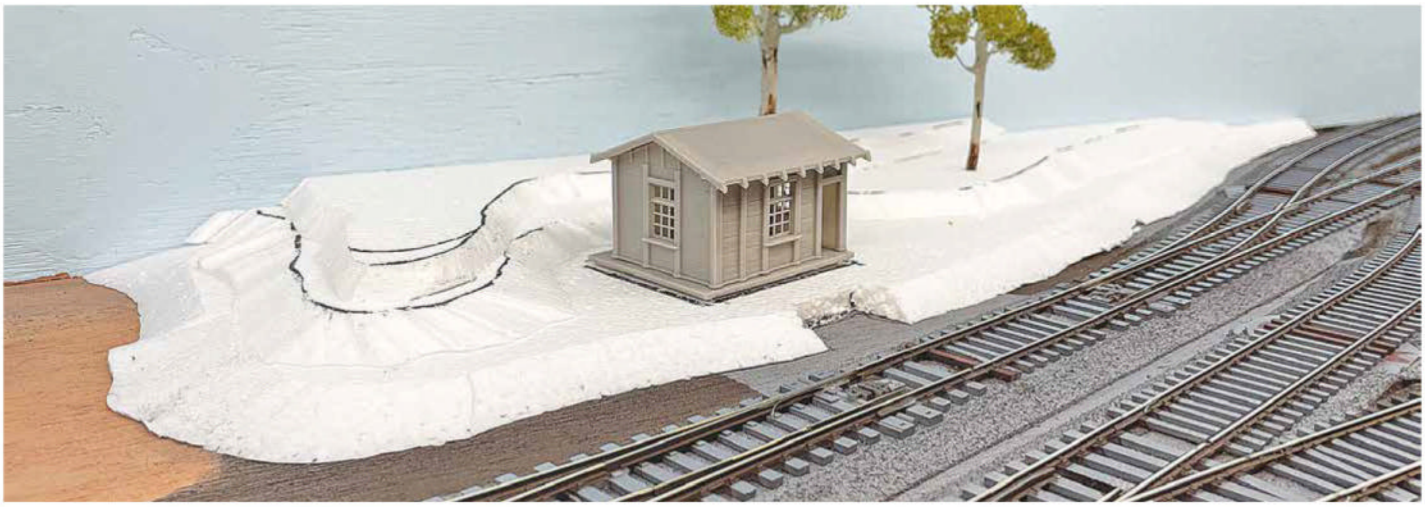
Now we begin the fun part, where the layout starts to look more like a model.

Adding landform

A flat landscape is neither realistic, nor prototypical. Even a railway yard has undulations and high points, and so I sought to add some landform on the layout to provide visual interest and help fill out the scenes. To make the landform I used polystyrene foam collected from various flat-pack furniture boxes from our last house move. The flat sections were cut in a rough shape with a hot wire foam cutter and stacked on top of each other to the desired height. I used a dollop of mod podge glue to hold the various layers together and then shaped the contours of the landform to a desired shape with the hot wire foam cutter. These were then glued to the layout with mod podge, coated with Spakfilla rapid and sanded back when dry. The landform then was painted with the same tester pot colour as used on the layout at the end of the construction phase.

To add the earth, I painted all parts of the layout where scenery was to be applied with Elle Towan's recipe for scenic glue (one part Mod Podge glue, three parts water, and a drop of standard dishwasher detergent) and coated it with a dirt mixture. I make my dirt mixture using a mix of 50/50 sandalwood colour tile grout and sifted and baked backyard dirt. It's important to sift the dirt to get a fine texture representative of the scale of your models, and baking the dirt will kill any bugs or sprouting seeds. While I sourced my dirt from my backyard, be aware that most gardens in suburbia have been levelled by throwing whatever scrap material is around into a hole and covering it with as little dirt as possible to save costs. Depending on how old your garden is, you may have nasty materials such as asbestos. If you're unsure, throw it away, and look elsewhere. Nature is all around!

To apply the dirt, I first masked the track and underlay, then painted the area with Mod Podge glue. The dirt was then applied onto the layout using an applicator made from the lid off a spray can and fitted with a section of old stocking over the top, which was secured in place with a rubber band. Once in place, I mist the dirt with a fine spray of isopropyl alcohol, and then spray the glue mixture. The isopropyl helps the glue to spread evenly.In places where the glue pools, I take a section of ripped paper towel and gently hold it in the puddles, allowing capillary action to soak it up. I then left the glue to dry for 24 hours.



Polystyrene foam shaped to the correct contour.

Adding details to the track

Using some Evergreen styrene HO scale 4x8 strip (part no. 8408), I extended some of the sleepers either side of the throw bar on selected PECO turnouts. This would allow me to later add scenic details such as ground throws and Johnson levers. The length of these extensions varied between 5-13mm, depending on the clearance of my longest wagon, an Australian National Railways 80ft GOX open wagon.

Painting the track

Before painting, I carefully masked the motion sensor for the Squealer unit with a template cut from paper, and then used Tamiya masking tape, so that the tape would not stick to the sensor. I also masked the nose of all turnouts so that paint wouldn't stick the rails in place when dry. To break up the uniformity of the sleepers I first spray-painted them with Tamiya grey fine surface primer. Once this had dried, I sprayed most of the sleepers with a Tamiya dark grey.

If you're using spray cans, ensure you do this in a well-ventilated area.

Alternatively, you can hand-paint the sleepers or use an airbrush or paint brush. You will still need good ventilation for the airbrush, but it's much more efficient in the application of paint.

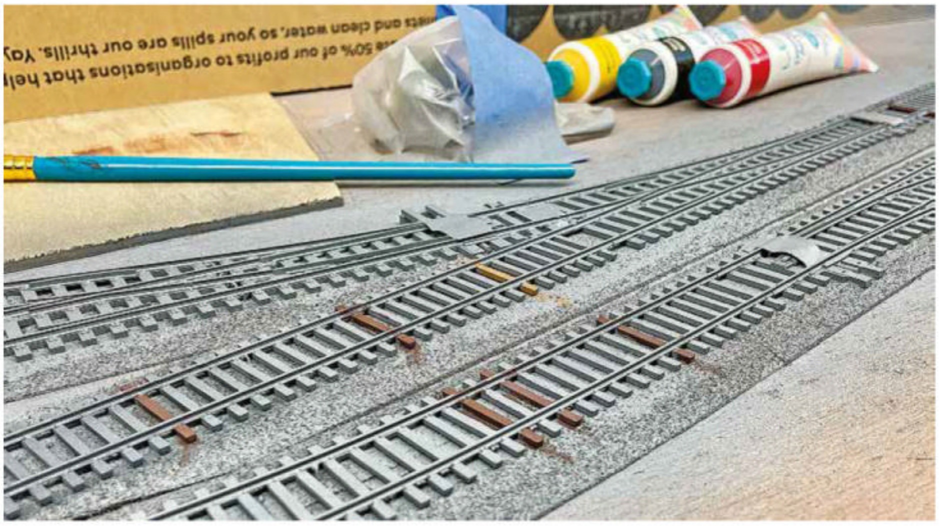
WARNING
A respirator should always be worn when working with spray cans.

Next, I mixed up some cheap artist's acrylic paint into various shades of dark grey/brown and painted about 10% of the sleepers in random areas across the layout with it. I picked out a handful in a lighter tan colour to represent newly-replaced sleepers, and in darker brown where I wanted to mark the location of an uncoupler. Leaving the layout to dry for about four hours, I then masked all of the sleepers with tape, leaving a section either side of the rails where the sole plates are represented in moulded relief. I then sprayed the rails with Krylon ultra-

Applying the Mod Podge.

Applying the 'dirt' mixture using the custom-made applicator.

Soaking up the glue with sections of paper towel.



Painting sleepers. Note that the 'noses' of the turnouts have been masked prior to painting.

Testing the track after painting.

flat brown camouflage paint.

After this had dried, I lightly went over the tops of all trackwork with ultra-fine sandpaper to remove the paint. You don't want to use the ultrafine sandpaper for anything more than removing the paint. As soon as the paint comes off, stop. Otherwise, you'll introduce fine scratches into the head of the rail, and over time dirt will accumulate in them, reducing your layout's electrical reliability. Normally, I would use a scrap piece of plywood, however I found the two layers of paint difficult to remove after having let them dry . Alternatively, you could also use a PECO track rubber, again taking care to stop as soon as the paint is removed. I took care not to remove the brown from the tops of the guard rails inside the turnouts.

Adding roads and hard stands

The road and steel siding hard stand were added using Woodland's Scenics road system called 'Smooth It'. This step is quite messy, so I added it prior to applying any grass or other scenery in case of spills. It's critical to mix the 'Smooth It' exactly as per the instructions on the box, to get a nice, smooth effect that dries evenly. You can also add a dollop of light grey acrylic paint while mixing so that any damaged areas in future don't expose unsightly white plaster.

I've found that the 'Smooth It' dries most effectively when it's less than 5mm deep, and ideally around 2-3mm deep. For the steel siding hard stand, I added a layer of 3mm plywood atop the baseboard first, to reduce the amount of material required and aid with drying time. When dry, I used the same ultrafine sandpaper as earlier with the track to sand the plaster off the top of the rails, and further cleaned this off with a track rubber from DCC Concepts (who are still not a sponsor of Leightonwood!). I then used the back of a hobby knife to gently gouge flangeways into the level crossing, testing these with the wagon with the most overscale wheel flanges I could find in my fleet, and a National Model Railroad Association (NMRA) track gauge. The flangeways in the steel sidings hardstand were also gouged in this manner, however they are deliberately wider on the level crossing owing to the curve. All trains have to stop at the relay hut to activate the crossing lights upon entering the layout, before passing over it at low speed. I cleaned the head of the rail and ran my least reliable locomotive through it at a low speed to ensure the clearances for the wheel flanges were adequate.

Next, I spray painted the roads, and hand-painted the hard stand. For the road, I masked everywhere that wasn't road and sprayed a medium grey from a rattle can onto the road. Next, I used Rustoleum in Satin Ivory Silk colour from a distance of about 30cm, spraying in short bursts to mist it above the road and let it settle. At this distance, the paint hardens in the air and falls in small droplets onto the road. The droplets are small enough that it produces a pebbling effect and lightens the medium grey. I wiped the road down several times with a dry cloth, which left a satisfying final effect. If you do this yourself, follow the process outlined in this video by Elle Towan: https://www.youtube.com/watch?v=vxhZ7uE7glY&t=1109s

I finished the edges of the road using Woodlands Scenic fine gravel in 'buff' colour, and some gutters assembled from spare strip styrene.

Line markings will vary depending on your era, but I opted for a solid, single white line to aid traffic from running into each other coming around the corner. I first arranged a length of Tamiya 2mm masking tape into an appropriate curve, and then lined each side of it with another piece of 2mm tape, masked flush to either side of the first piece of tape. I then used wider masking tape and paper to mask the rest of the road and removed the tape masking the single centre line. This provided a line of consistent shape and width to paint. I dabbed a narrow foam brush in white artist's acrylic paint, dabbing at least half off onto a paper towel, and then applied the paint to the road in light dabs until the whole line was covered. I left this to dry for a few hours and then re-applied another two coats. The overall effect represents a fairly new line that is lightly weathered and worn by traffic driving over it.

There was some bleeding of the white paint under the masking tape, so where this had occurred, I followed Elle Towan's lead again and applied a darker asphalt colour using a black artists acrylic and a fine brush. You can also daub some darker colours in geometric patterns with a border drawn on with a black felt-tip pen to represent a repaired patch.

For the steel siding hardstand, I mixed up a light-to-medium grey colour using artists acrylics and painted it onto the plaster using a wide foam brush. Once dry, I came back and lightly stippled a light grey over the top of the darker grey. Once this had dried, I took a sharp, dark grey pencil and drew concrete join lines in roughly symmetrical square patterns with a standard ruler.

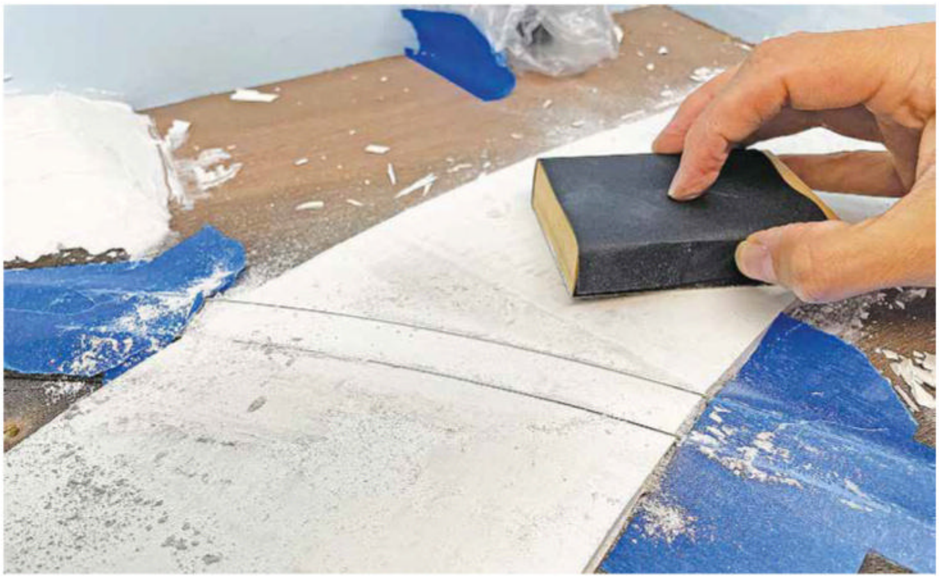
For the Blue Circle Southern cement siding I used Scalescenes concrete hardstand printed on standard A4 paper, cut to size and glued around the rails. This was for two reasons; from experience on previous layouts the hardstands at the front edge receive the most knocks and bumps, and I wanted to save on drying time for using additional 'Smooth It'. I then added ballast in between the sleepers.

Adding the scenery

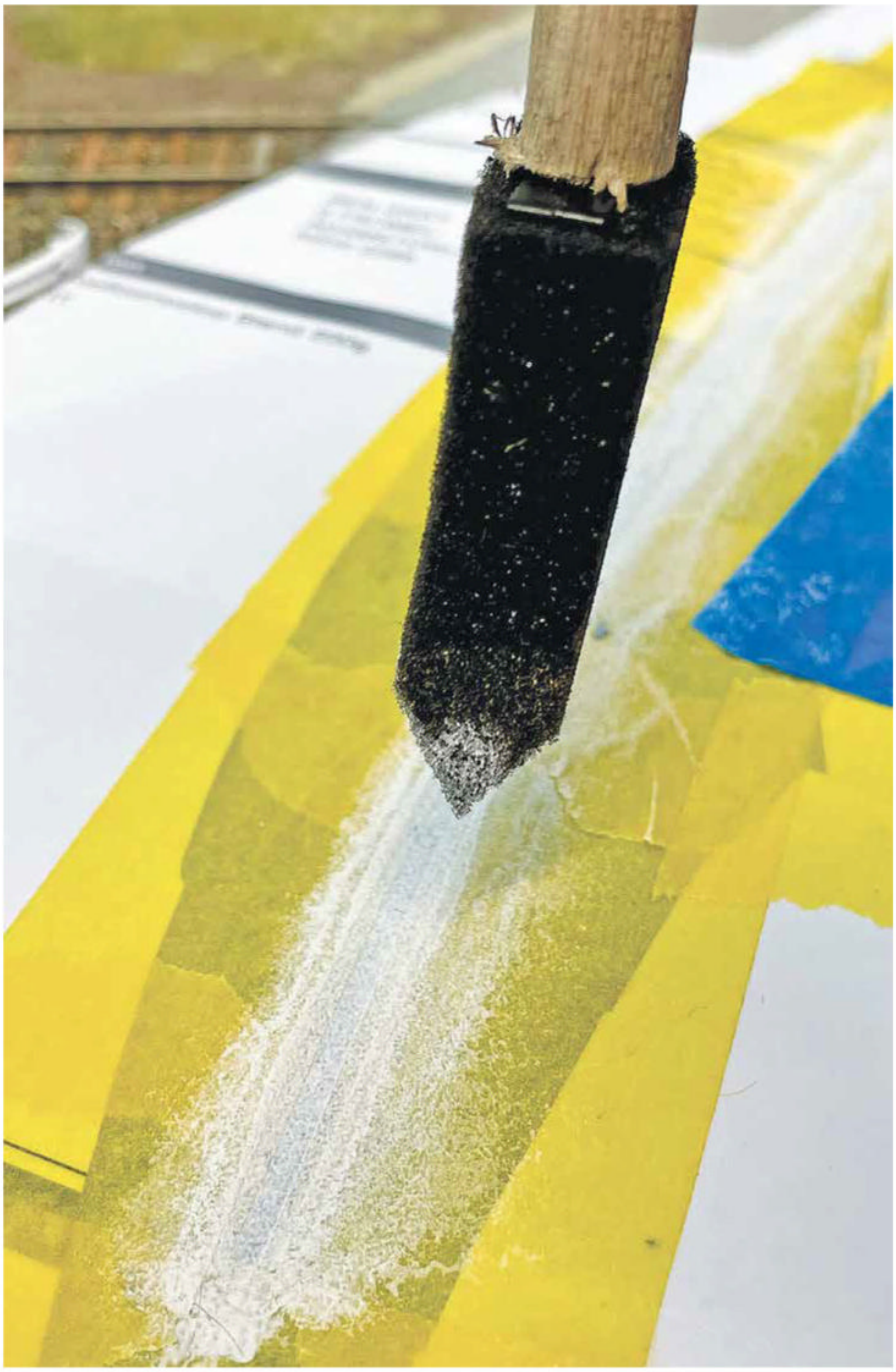
Next comes arguably the best part – adding the grass. I've used a scenic mat and static grass to achieve this effect.

Grass

I had a Martin Welberg Scenic mat left

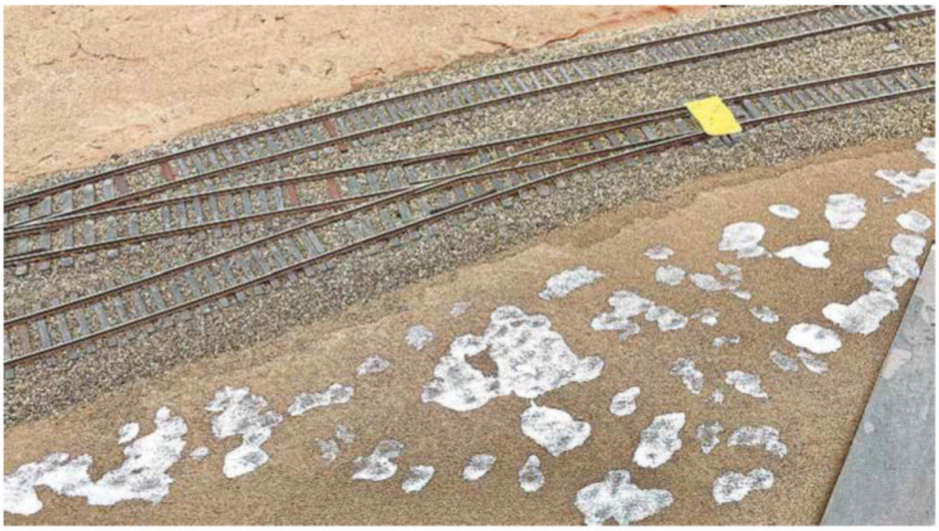


With the 'Smooth It' applied the gentle sanding revealed the rails in the road.

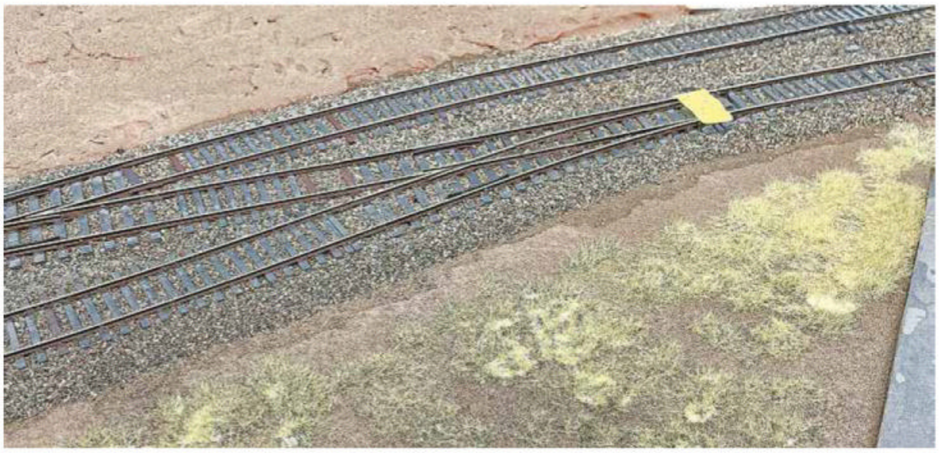


Painting the line markings.

Grass mat laid in place.



Applying the glue for static grass application.



The first application of static grass.

First layer of grasses and bushes.

over from a previous project, so I added this to the right-hand side of the road, securing it with mod podge. These are fantastic products for detail and texture and can be easily and quickly blended into other scenes.

Next came the static grasses. Nature isn't uniform, so the greenery on any layout is most convincing if added in layers. You should also closely look at what colour the grass is in the areas that you're modelling; someone modelling the Northern rivers district of New South Wales (NSW) will have subtly different hues of green and yellow than someone modelling the central west, for example. I want to depict early summer in 1979 in Sydney, so the grass is likely to be green but not verdantly so, with signs of drying in out as the temperature warms. If you're not so tightly bound to a time period or season as I am and want a perennial south-eastern Australian feel, go for a mix of faded greens and yellows.

For the base layer of grass, I mixed a third each of Mininatur No. 004-23 Early Autumn, No. 004-24 Late Autumn 4.5mm grass fibres, and Woodlands Scenics 'Wild Honey' in a sealed container and shook it for about half a minute to blend the fibres together. Every few applications, I will also mix in either a smaller amount of Mininatur No. 004-22 Summer, or No. 004-27 Beige to create further variation. To apply the grass, I daubed Mod Podge to the earth in blotches to produce a realistic pattern of coverage, and applied the grass using a static grass applicator, working in roughly 30 x 30cm sections at a time. The trick here is to not try to create a carpet-like coverage on the first pass. You want to still be able to see the dirt beneath.

I then came back and applied highlights of dark green, yellows, and dried greens in around 30% of the scenicked areas, to provide further variation and create a base to apply bushes and weeds later. After each application has dried, I placed an old stocking over the end of a vacuum, and vacuumed up the loose fibres, placing them into a container to retain for making bushes.

Bushes

I wanted to represent the kind of delivery truck-height bushes that frequently thwarted my attempts to see trains from the school bus when growing up in Sydney. Following a tutorial from a German modeller I found online, refer: https://www.youtube.com/watch?v=hUjOYZMJA1M

I selected some old Woodlands Scenic lichen and broke it up into 3 to 6cm lengths, baking them for around 30-40 seconds in the oven set to 200 degrees. Its better if you have more earthy-coloured lichen, though any lichen will do. This was covered with Mod Podge glue, and then 12mm beige static grass. I then sprayed the bush with a strong hairspray and further coated the bush with the static grass that I had vacuumed up from the layout earlier. I applied another coat of

Blended bushes and trees.

Detail of the bark at tree base.

hairspray and then either applied a blend of Noch leaves or Woodlands Scenics fine turf, followed by a final shot of hairspray to seal it all together. By the end of the process, each bush is roughly double in size from the original size of lichen at the beginning. I went for the Noch leaves more often than the turf, but both produce a convincing effect, quite quickly.

The bushes were blended into the scene by using various Martin Welberg Type E medium green and burned green bushes, as well as Mininatur grass tufts.

Trees

The trees are all by Will James Railways, or JTT Trees. I drilled a small hole for the wire base to connect to the baseboard, or simply poked them into the polystyrene foam where applicable, and secured them with a small dollop of Mod Podge glue.

The trees look most convincing when blended into the scenery. My son dragged home a sizeable branch from a Eucalyptus tree on one of our walks around the neighbourhood right before I needed to complete this step, and the dried leaves, small twigs, and bark provided ample texture to grind and place at the base of each tree to represent bark and branches shed from the trees.

Laying ballast

I usually leave this step until after the base layer of dirt has been laid to the landform. The real railways are laid on top of cleared earth, and following this order not only produces a more convincing effect in my view, but also limits unwanted material staining your nicely-finished ballast.

Prior to adding the ballast, I filled the depression in landform between the underlay of the main line and run-around with washed and dried beach sand to represent the level surface often found in yards. If you collect sand in this way, it's important to wash it to remove the ocean salt and whatever other sea life might be hanging around. I definitely did not bake the sand in the kitchen oven at 200 degrees for 45 minutes on our regular cooking trays lined with baking paper to dry it out. Though I'm sure that if I did, my wife would be most understanding. The now 'miraculously-dried' sand was then sifted to remove the last of marine flora and ocean detritus before dispersing in the desired area with a teaspoon and flattening it with a small foam brush. I masked the surrounding track with painter's tape, and the plaster with newspaper, and sprayed isopropyl alcohol, followed by the scenic cement mixture. I left this to dry for a few hours and then applied medium grey tile grout over the sand from a fine tea strainer until the yellow colour of the sand was no longer visible. I then misted the grout with scenic cement and left it to dry overnight.

Next came the ballast. I'm using Chuck's Ballast 'Martin's Creek', mainly because I had a large tub of it left over. Working in around 30cm-long sections at a time, I applied a scoop of the ballast between the rails using a teaspoon and then spread it out using a narrow foam brush. I took care to spread the ballast along the track until the level between each sleeper was below the top of the sleepers. I then spread ballast outside of the rails, and down the side of the underlay, taking care not to spread any ballast beyond the footprint of the foam underlay. The ballast on the shoulder of the track bed is gently formed into the desired shape with the foam brush. The whole track, ballast and all, is then sprayed with isopropyl alcohol, with scenic cement applied from an eye-dropper, and left to dry.

I thought the finished effect might look a little too well-maintained for an urban branch line, where the sleepers are often resting in or just proud of the surrounding earth, however I have found enough prototypical examples on the Sandown line and Chullora industrial branch in my era to justify this. If you want to try a more austere look for your permanent way, I've previously written about how to produce a track-embedded-in-earth effect using sand and tile grout in AMRM Issue No. 349 (August 2021).

Backdrops

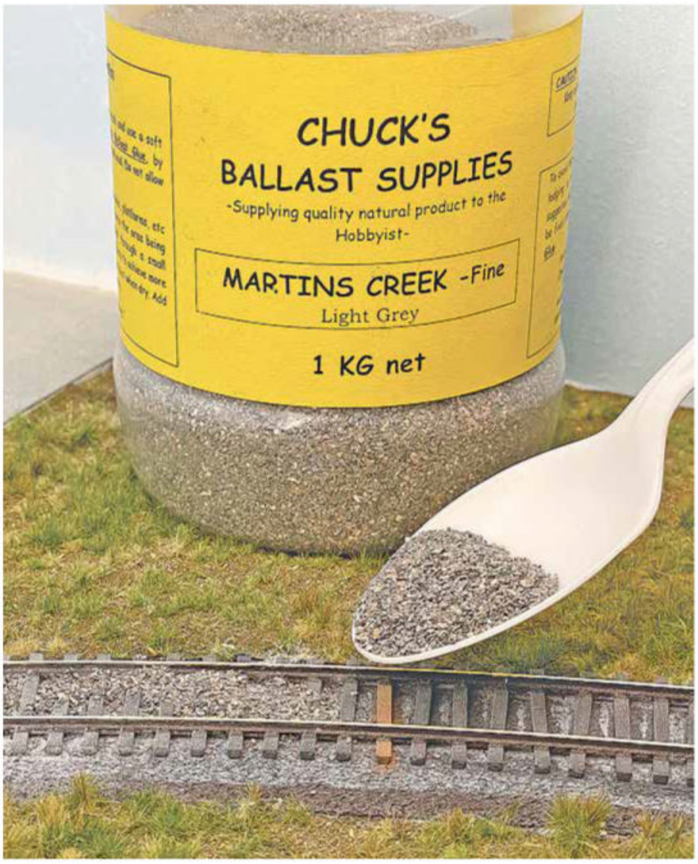
Once the bulk of the scenery work was complete, I added the backdrops. I do this after most of the scenery work is accomplished to prevent damage.

To make the backdrops, I found suitable photos on Google Streetview, in the background of photos of trains, and from stills from era-specific films from the National Film and Sound Archive. These were cropped in Microsoft Paint and added to Microsoft Word, where I could further use the simple settings in this program to adjust the light and colour hues if necessary. Once printed out onto office paper, I roughly cut around the trees and the horizon level, then glued these to the backdrop using Mod Podge glue. I flattened the backscenes against the backboard using a wide foam brush to ensure there were no air pockets or creases.

Buildings

I wanted the buildings surrounding the railway to represent a metropolitan light industrial area transitioning into a residential area, like much of the suburbs surrounding the metropolitan goods lines.

The cement silo is a Southern Rail Models (SRM) ready-to-place structure and this saved me a lot of time over building a scratch-built structure. You can see in earlier photos in this article series that I'd been contemplating kit bashing a



Laying the ballast.

Spreading the ballast.

Applying weathering powders to the ballast.

Applying the backscenes to the backdrop.

Walthers kit, but this SRM structure was the perfect size and type for the scale of industry I wanted on the layout.

The signal box is a ScaleModelCo 3d-printed kit, that has been painted with various Tamiya spray cans. I weathered the roof using brown and dark grey Bragdon Enterprises powders.

The warehouse at the steel sidings is scratch- built from evergreen styrene and leftover parts from another Walthers kit. The design is influenced by the structures that used to stand in the BHP sidings at Leightonfield until a few years ago.

The toilet block was a freelance structure constructed from some spare brick-textured card I had lying around and is roughly modelled on a similar toilet block within the United Goninan Limited factory in Newcastle NSW. This is visible from the adjacent main road.

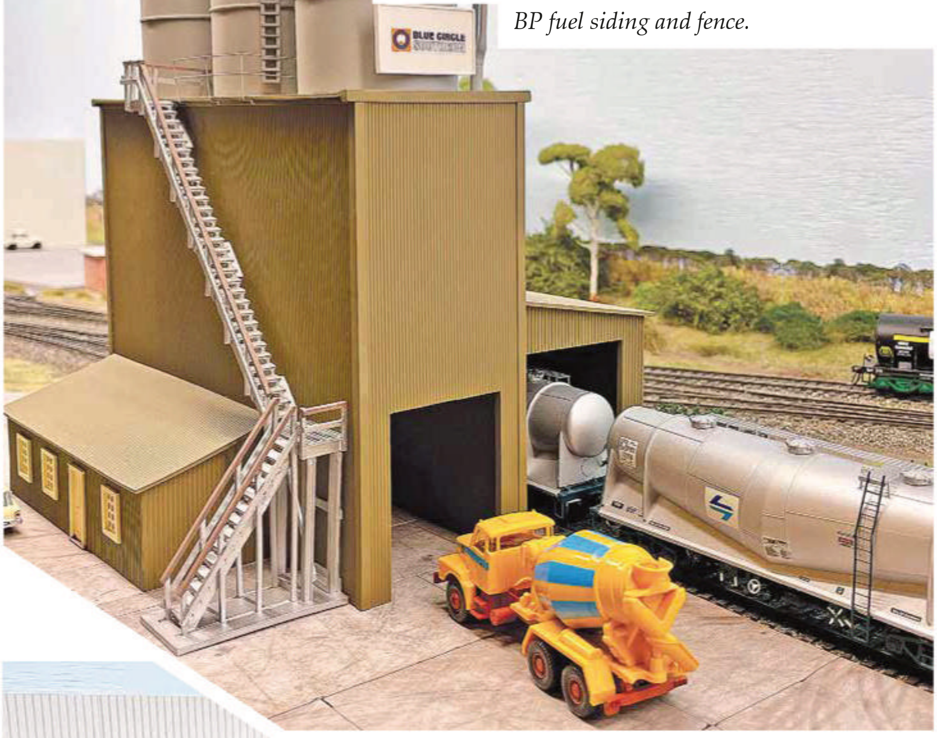
The Repco store next to the level crossing is intended to provide visual interest and add authenticity to the scene by not being rail-served or rail-related. It is constructed from a Rix Products 'Cab Company' building, with an extension scratch-built from plain and corrugated evergreen styrene. My dad started his apprenticeship as a mechanic at Repco in 1977, so I figured this was as good a business as any to use as a prototype. I've taken significant inspiration from a similar building the Australian Capital Territory (ACT) Model Railway Club has on their layout 'Yendys'.

Scenic details

The level crossing lights are by Handmade Accessories, and come with a flasher unit, which I've configured to run with the Iowa Scaled Engineering Soundbytes unit. I noticed that what the NSW railways referred to as Type F crossings (F for flashing lights, with or without barriers), usually had curved Armco barriers around the base of the flashing light poles. I achieved this by gently bending some Rix Products 'highway barriers' around various-sized bottles of Tamiya paint and holding them in place overnight with a few rubber bands, before gluing them to the poles and fittings that come in the kit and painting them white. I drilled small holes around the crossing lights at the appropriate place and pushed the barriers into place, securing them with a small drop of Mod Podge glue.

I've used an Infront Models relay hut and Uneek trackside telephone to help provide some 'furniture' to further set the scene. I've seen the latter used to house

▶ *Blue Circle Southern's Leightonwood cement plant.*



local controls for level crossings, and so each train entering the layout pauses here for the second person to hop out and activate the crossing. In time, I will install a lower-quadrant signal set to 'Stop' as well to further create a sense of time and place.

I've completed the road scene with various Australian and European vehicles, and utility poles by Woodlands Scenics. Birds from Platform Printing Australia have also been added – a Kookaburra sitting on one of the utility poles at the level crossing calling to another Kookaburra in a tree, and several Ibis hanging around a rubbish bin at the Repco store. Ibis hadn't quite arrived in Sydney in the sizeable flocks that we're used to today by the late 1970's, but they're instantly recognisable, they help place the location, and I like them.

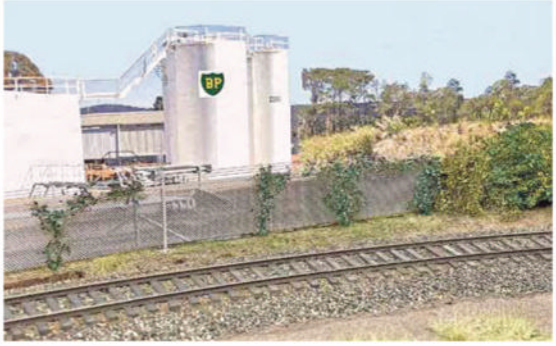
To represent the fuel siding, I've used Alkem Scale models chain link fence, painted with Taimya grey fine surface primer and added Mininatur vines, and bushes to blend the fence into the backscene. I'm quite happy with how it's turned out and the illusion of the world 'off-stage' it creates.

I have grouped some AndIan Models 3d-printed fettlers in front of the track to the left of the cement siding, probably conversing about the squealing noise emanating from the turnout to the steel sidings! Shortly I will add a generator trailer from ScaleModelCo and some leftover sleepers and other yard junk from Uneek as well to finish this scene.

Concluding jobs

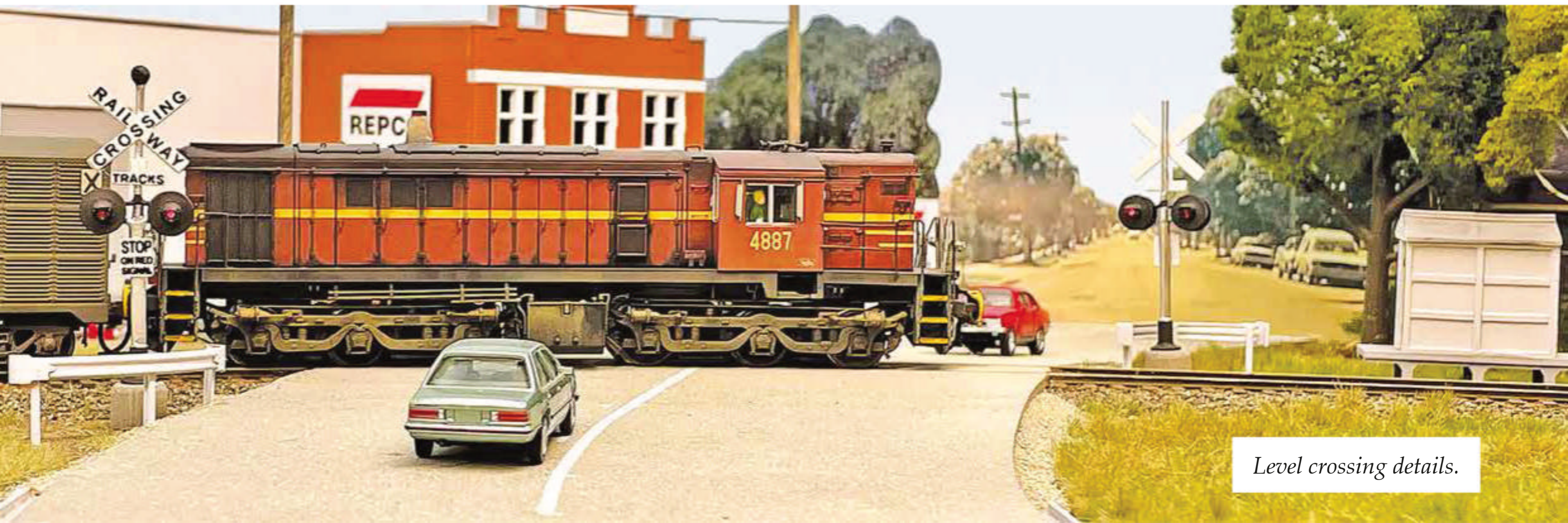
Once all of the jobs involving paints and glues were finished, the tops of the rails were thoroughly cleaned with a DCC Concepts track rubber. As this produces small filings of rubber, these were vacuumed up, before Inox Mx3 electrical contact cleaner was applied with a clean cloth.

Now it was time to enjoy running trains. In the next instalment, I'll discuss operations.



BP fuel siding and fence.

Leightonwood steel sidings and warehouse.



Level crossing details.

IN THE LOOP

A suitable modelling prototype

Trevor Hodges, photos by the author.

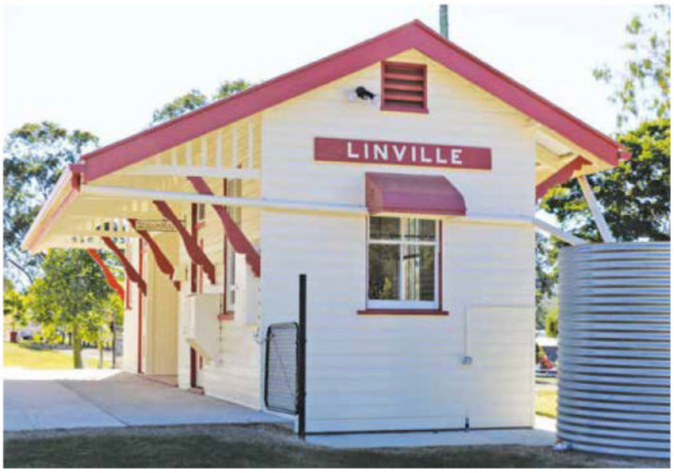
The time I've had available for modelling over the past couple of years has been limited due to a house move, building of a new train room and being a joint owner-builder of a new house. So, what better time to start dabbling in a new prototype interest in the form of scratch building two Queensland Railways (QR) PB15 locomotives in 1:43.5 scale? I'm not sure why I made the decision to build these locomotives, but I am pretty certain when the actual decision was taken. I was visiting the home of my friend and fellow O-scale modeller Peter Krause and looking at the progress on his layout Saddlersfield, a semi-prototypical model of Tenterfield, the prototype of which is located near the Queensland border in NSW. Peter's layout is an oval of track that includes a pretty close representation of Tenterfield yard. The line continues, rounds a curve and arrives at the small town of Jennings, where the New South Wales Government Railways (NSWGR) 4′8½″ gauge meets the 3′6″ gauge of the QR. Peter chose to name this part of his layout after the NSW town of Jennings rather than better known Queensland town of Wallangarra. I'd visited Peter's layout on several occasions but this time, I said something like 'wouldn't it be great if the Queensland rolling stock was the same scale as the NSW models.' I seem to remember Peter's response was a rye, 'Yes, wouldn't it.'

I love a challenge, so after a couple of weeks of thinking about it, I rang and asked Peter if he'd be interested in a QR PB15 steam locomotive if I built two of them - one for him, one for me. Unsurprisingly his reply was 'yes'. In the intervening years I've made some progress on building these locomotives, and Peter has re-laid all the QR track in the yard at Jennings to suit the scale we'd be working in. He has also built a small diesel shunter and has several pieces of rolling stock in progress.

So, the question arises: what am I going to do with a QR PB15 in 1:43.5 when I have no intention of building a layout where I can run both NSWGR and QR stock? I don't like my models to sit in display cases so the obvious answer is that I should build a small layout or diorama depicting a Queensland location which would allow my locomotive to occasionally shuffle back and forth. Knowing almost nothing about the QR system I started by buying a couple of books and looking at photos on the internet. There's a small railway museum just down the road from where I live so I consulted their print collection and spoke to a couple of museum members, but nothing leapt out at me. On another visit to Peter's, we sat discussing my search for a prototype and he suggested Linville which is a station on the Brisbane Valley line. He showed me some photos and we got talking when I had one of those rare shivers down the spine, the same feeling I got the first time I read about Morpeth in issue 14 of 'Byways of Steam'. On my next visit to Peter's, we arranged to visit Linville so I could walk around and assess its suitability as a modelling subject.

In the historic photos of Linville I'd seen in books prior to the visit I'd noticed a couple of buildings that were screaming out to be modelled; the site visit was about seeing what was still standing and whether the remains of the buildings and other infrastructure would be sufficient to provide the detail I'd need to build accurate models of them. I was especially interested in the station building, the station master's house and the locomotive water tank. The railway line has largely been lifted and the right of way turned into a bike/walking track, but a good deal of effort has been made to preserve the buildings. The goods shed has been demolished, along with the water tower, but just about all the other important structures have been preserved and are readily accessible, except for the station master's residence which is now a private residence. However, it was the beautiful Linville station building that got me excited. It's big enough to be an interesting modelling subject but small enough that it's not going to take an enormous amount of time and effort to do it justice. It has a distinctly QR architectural style but has nothing about it that's going to cause me major problems when I come to make a model of it.

I'm not exactly sure a PB15 ever ran up the Brisbane Valley line but I'm not terribly concerned about that. The branch line that ran through Linville is the perfect prototype for my needs and will give me plenty of opportunity to tinker with my new prototype when the mood strikes. I've set myself a deadline of August 2025 to complete the locomotives, and having a locomotive to run on a layout is always an incentive to lay some track. I know Peter's looking forward to having his PB15 and I can't wait to see it running on Jennings.



The beautifully preserved Linville station building sits in some warm Autumn sunshine in 2024. While the building has been placed on a new foundation and possibly moved back from where the old rail line used to run, the details seem to be largely undisturbed.

Locomotives and rolling stock of the Manildra Group

Chris Jones outlines the Manildra Group's latest locomotives and rolling stock.
Photos by the author unless otherwise stated.

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Manildra Fleet

1. Wagon Technology

To Manildra Group's credit, they have purchased state-of-the-art rollingstock for their freight operations. The modern era of railway economics requires longer and heavier trains to achieve a reasonable return on investment.

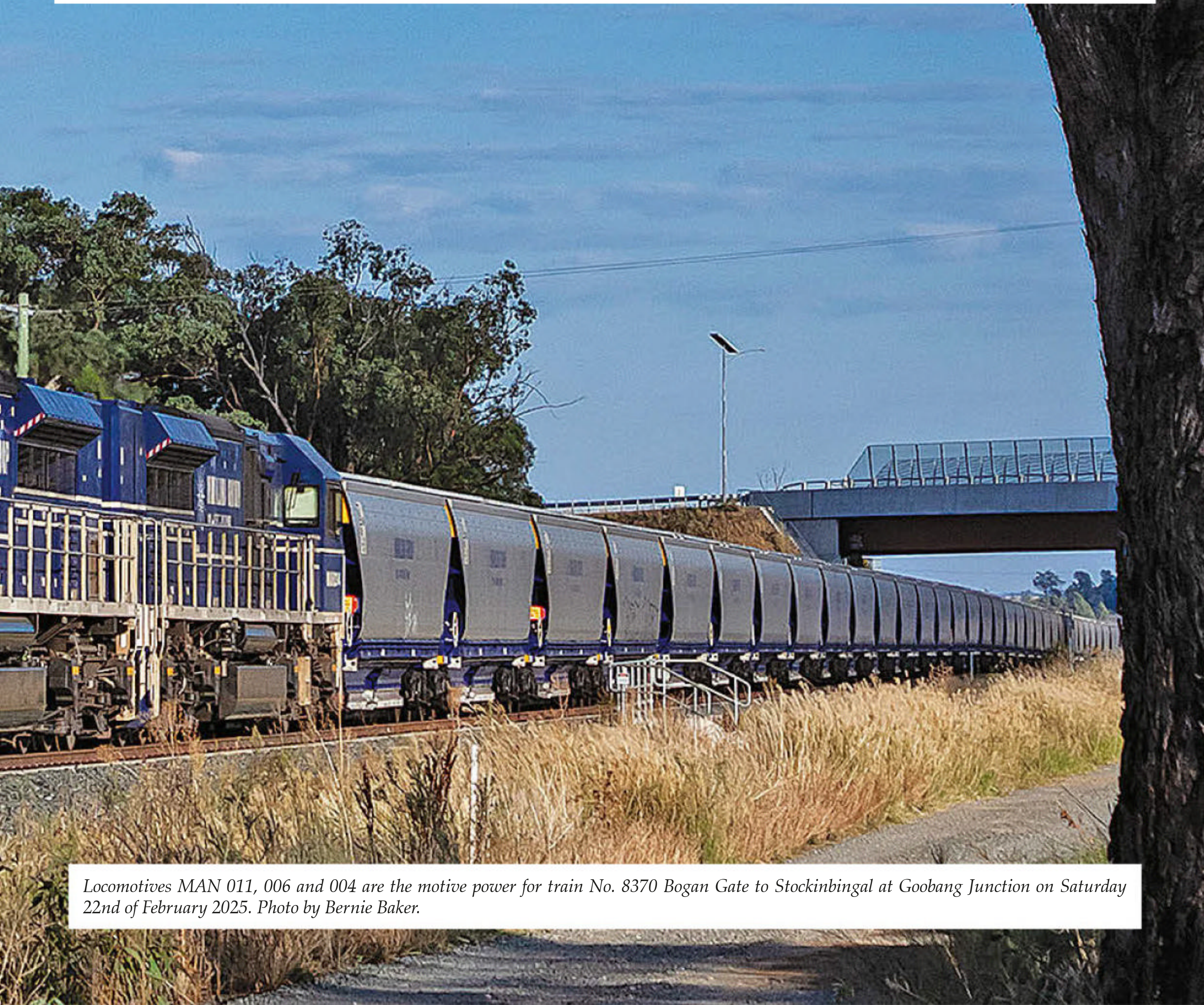
Maximising payload, increasing train density, having the best train braking performance, and minimising train preparation and stabling time are all achieved through intelligent specification and design. All new Manildra Group wagons are fitted with K class bearings and 920mm diameter wheels which enable 25 tonne axle load capacity where the networks allow.

While the specifics of each wagon type will be discussed individually, the commonly shared technological highlights of the Manildra Group wagon fleet include:

- Electronically Controlled Pneumatic (ECP) Overlay brakes
- Automatic Park Brake (APB)

The ECP Overlay system is supplied by Wabtec and allows brake operation in either standard pneumatic brake mode with non-ECP equipped locomotives or in electronic brake mode with newer AC traction locomotives. In standard pneumatic mode the wagons operate like any other non-ECP wagon, however in ECP mode the brakes are applied and released by an electronic signal that runs down a cable called the 'Trainline'. This electronic cable sends the apply and release message from the locomotive controls to each wagon brake system. Some of the advantages of ECP brakes include near instantaneous brake applications resulting in superb stopping distance ability, graduated brake release capabilities, continually charged brake pipe pressure, and the option to operate wired-distributed-power (WDP) locomotives. ECP brakes and WDP operation effectively allow train sizes to significantly increase where they have historically been limited due to steep descents and the reliance on air brake operation. Without ECP brake technology, train length and weights could not be increased.

Wabtec's Automatic Park Brake (APB) is a much more recent development with very few examples applied across a fleet of wagons. The APB is a spring-type brake that is held in the released position by brake pipe pressure. When brake pipe pressure is not present, the park brake applies. The APB is part of the bogie-mounted Wabtec TMX® brake system on the wagon. This system means that in the event of a train separation or break away event, the APB will apply on all the wagons in the consist and will remain applied indefinitely as the park brake is mechanically held rather than relying on air pressure, which is prone to leaking off over time. The APB has effectively removed the requirement to complete a brake retention (holding) test and has also removed the need to apply mechanical handbrakes. The replacement of handbrakes has reduced the time to stable a large rake of wagons and has also removed the need for train crew to walk in the rail corridor which is never without risk. Steering bogies are fitted to most of the new fleet (except the MGGH wagons), which reduces wheel wear on curves and also reduces rolling resistance which in turn reduces fuel consumption. Steering bogies have been common for several decades now, and the new Manildra Group fleet utilises a Scheffel-type 'H' shaped frame.



Locomotives MAN 011, 006 and 004 are the motive power for train No. 8370 Bogan Gate to Stockinbingal at Goobang Junction on Saturday 22nd of February 2025. Photo by Bernie Baker.

MAN class locomotives

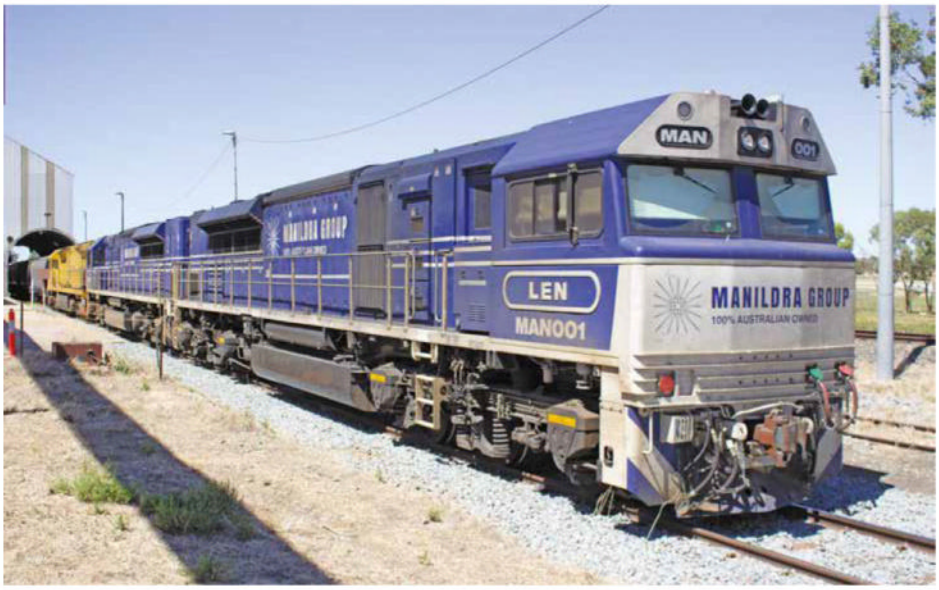
The 17-strong MAN class are the second generation of the successful Progress Rail GT46C-ACe GEN II diesel-electric locomotive model. The MAN class are known as AC traction locomotives which achieve high wheel-rail adhesion levels making them one of the most capable hauling locomotive types operating in New South Wales (NSW), being able to haul 1500 tonnes up any 1:40 (2.5%) gradient.

The MAN class are fitted with a single cab which has a single forward-facing control stand. The brakes are driver-controlled by a Wabtec 'FastBrake' system, with other controls and displays accessible via the two Functional Integrated Railroad Electronics 'FIRE' control screens on the driver's console. An In-cab Communications Equipment (ICE) radio for communication and an array of switches and buttons make up the primary interface. Cab ergonomics were improved between the first and second generation of GT46 locomotives which included repositioning of the throttle control. A forward-facing camera and data logger are accessible remotely for immediate review should there be an incident or fault that occurs.

The prime mover is a 16-cylinder '710' (710 cubic inches of displacement per cylinder) built by Progress Rail, which has several decades of proven reliability and performance not only in Australia, but the United States of America (USA) and many other countries. Anecdotally reported by train crews, the GT46C-ACe has a most impressive dynamic brake performance, capable of generating around 325kN, which significantly reduces the reliance upon the train (wagon) brakes.

Maintenance intervals of 184 days allow for exceptional availability of each locomotive, reducing transfer and maintenance time in workshops.

The MAN fleet are being named after close family and friends of the owner of the Manildra Group. Locomotive names are on a first-name basis which gives a nice personal touch when operating and maintaining the fleet; MAN001 is named 'Len' and MAN002 is named 'Simmo'. The livery was designed by Steve Malpass.

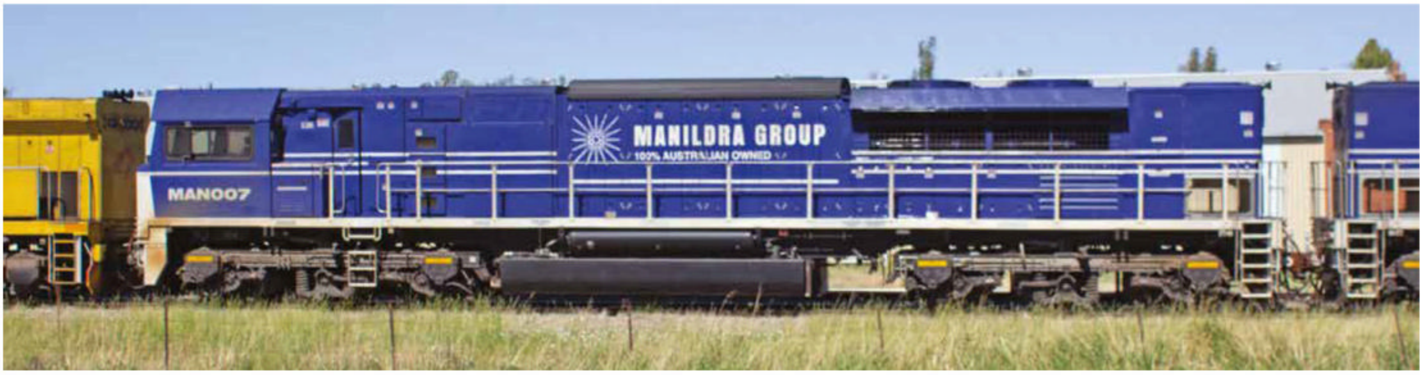


◀ *MAN001 'Len,' MAN007, and CF4409 are stabled at Old Junee with a consist of MGIHs and MQCH on the 4th of March 2025. Photo by Scott Fitzgerald.*

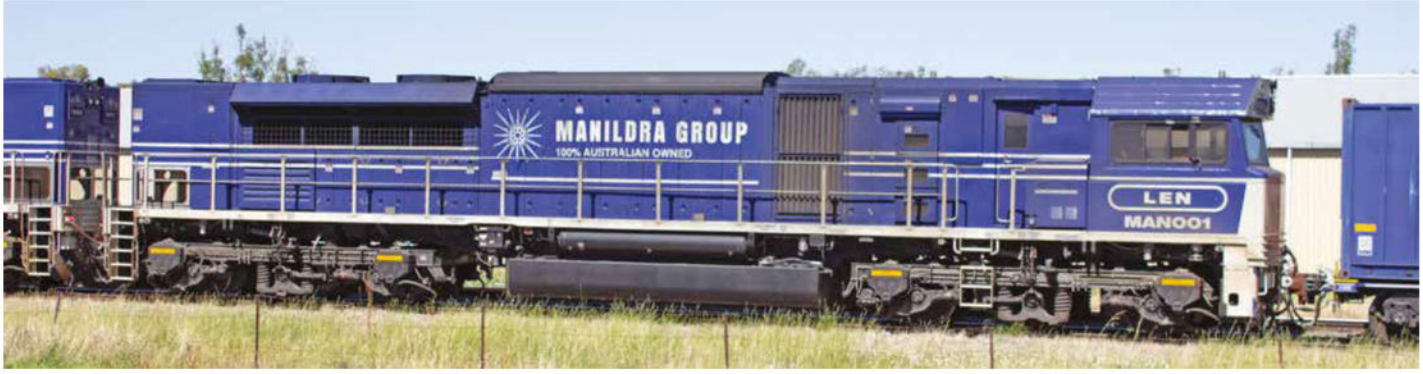
MAN001 'Len' and MAN007 roof detail. Junee, 4th of March 2025. Photo by Scott Fitzgerald.

YANG MING
YANG MING
MAN
001
LEN

◀ *CF4409, MAN007, and MAN001 'Len' are about to propel to Old Junee on the 4th of March 2025. Photo by Scott Fitzgerald.*



MAN007 driver's side profile. Old Junee, 4th of March 2025. Photo by Scott Fitzgerald.



MAN001 'Len' observer's side profile. Old Junee, 4th of March 2025. Photo by Scott Fitzgerald.

MGHH Flour wagon

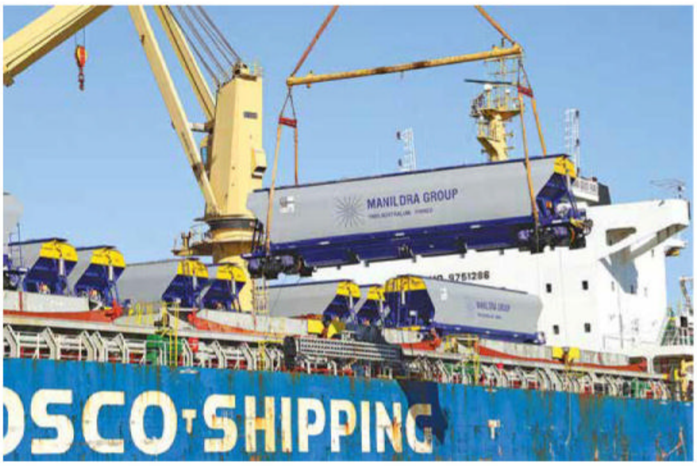
Based on the successful 1994 ANI-Ruwolt (now Bradken) built MGFH flour wagons, the MGHH flour wagon class are a modernised version built some 30 years later by CRRC Meishan. Due to loading interfaces at Manildra and Gunnedah, and unloading interfaces at Nowra/Bomaderry the wagon design was constrained significantly, including in total length. Hydraulically-operated discharge doors remain a unique feature only seen on these flour wagons both in 1994 and in 2024! The original reason for hydraulically operated discharge doors was to prevent malicious opening while these wagons were in transit or stabled in yards.

Some notable variations between the original MGFH and new MGHH wagons include:

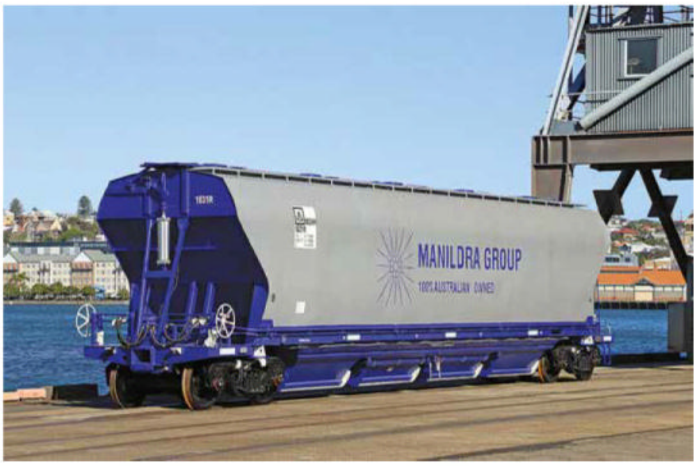
- The MGHH having a full-length through-loading hatch which makes it loader-friendly if utilising the wagons for grain operations.
- A full-length rooftop walkway and harness rail allows safe loading.
- The MGHH bogies are closer together as the MGFH bogie position no longer complies with current bridge-loading standards.

The MGHH wagons operate as a bar-coupled pair, with the fleet comprising of 30 pairs (60 hoppers) numbered 1801-1860. This series follows on from the original MGFH 1700 series.

The MGHH hoppers are an impressive sight with a massive 126 cubic metre capacity inside the stainless steel hopper structure, and each wagon pair being 35.8m in length. The wagon fully utilises the available rollingstock outline and peaks at 4232mm in height. Steel components such as the discharge gates, end deck, and bolster sections are painted Manildra blue.



MGHH 1828-D being unloaded at Carrington NSW.



MGHH 1831-R on the wharf road at Carrington NSW.

MGHH with roof hatches open.

COSCO SHIPPING

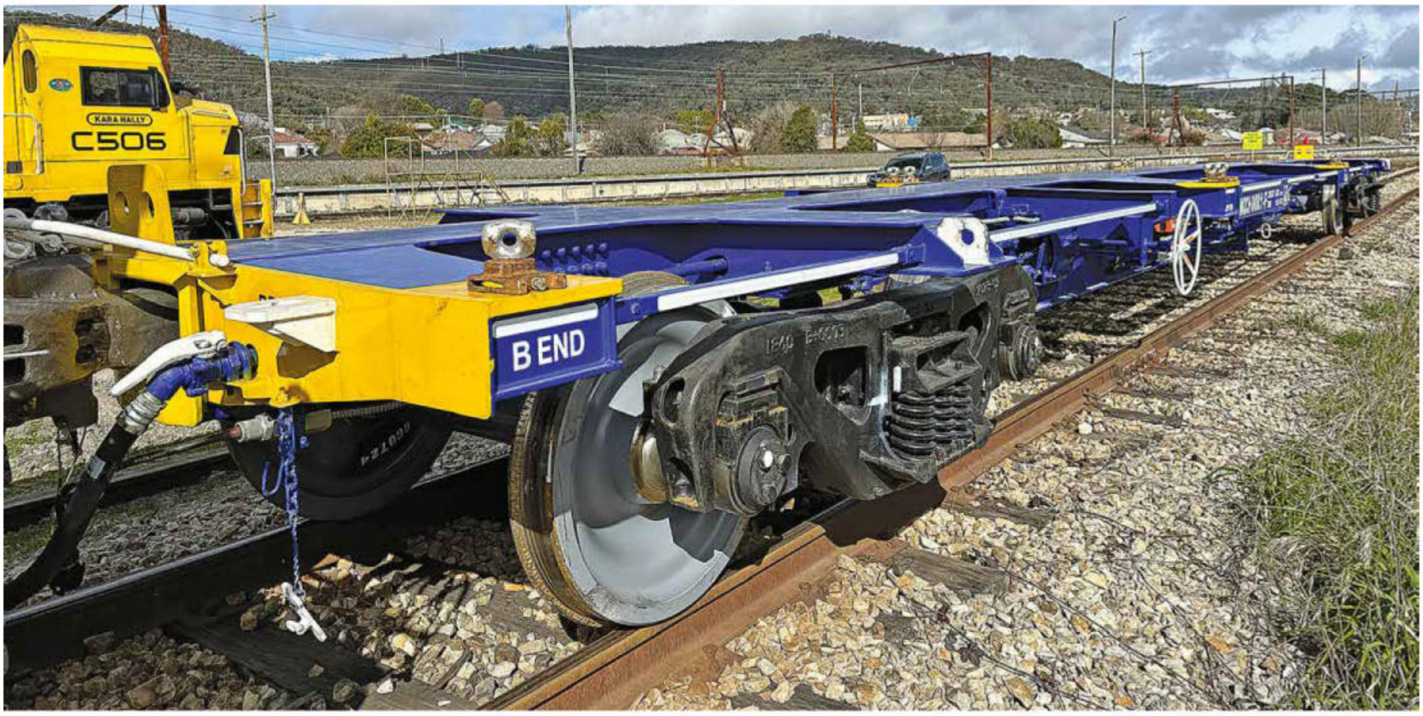
MGHHs being unloaded from the vessel Jian Guo Hi, moored at West Basin Carrington NSW on 30th of August 2024.

MQCH Container Wagon

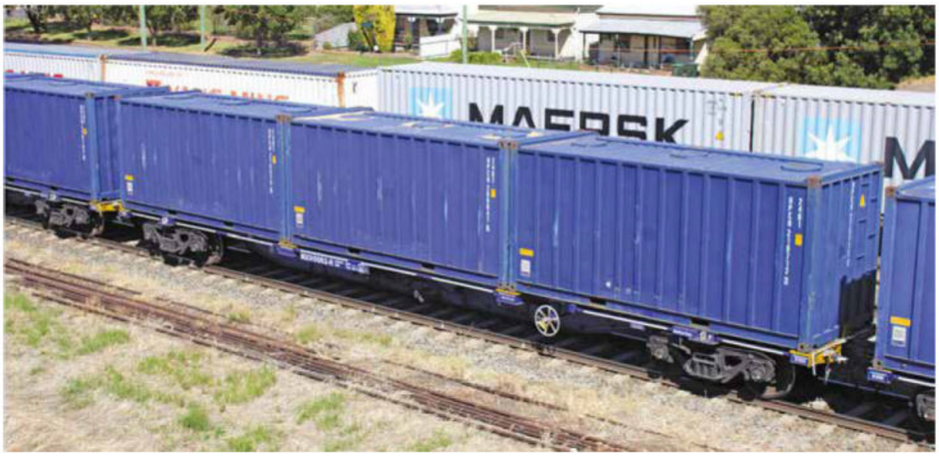
Totalling a fleet size of 103 and numbered 0001-0103, the MQCH fleet is similar to the majority of three twenty-foot equivalent unit (3-TEU) container wagons built in China over the past 25 years. Their 100-tonne gross rating put them in the same category as the Fletcher FRAY fleet, capable of carrying more than 80 tonnes on the deck, and measures an efficient length of less than 19.4 metres. The deck height of 1060mm enables high cube (9′6) containers to be carried on most routes, however these wagons were not procured for high cube 40ft containerised freight.

While primary operations are for 20ft export (shipping) containers between both Nowra and Manildra to Port Botany, the MQCH fleet has seen considerable utilisation carrying the bulk-grain ‘Blue-Box’ fleet from regional NSW load sites to Nowra. This bulk container task has been of critical importance after Manildra lost several storage silos due to structural collapse in late 2024. The blue boxes are being used for additional storage at Nowra.

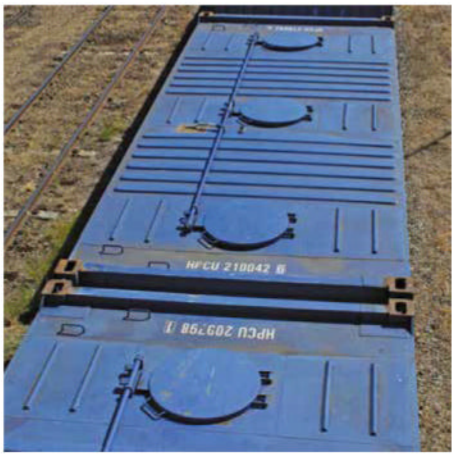
Built by CRRC Meishan, the wagons have some heritage to the LQAY, PQKY and PQSY/SQSY container wagons, however these are the first to be fitted with ECP and APB. Another unusual feature of the MQCH is that it is fitted with a main reservoir (two-pipe) system. While not necessary for the operation of the wagon, it does make it significantly easier to mingle all Manildra Group wagons together in a consist as the bulk hoppers rely on main reservoir pressure for top hatch and bottom door operation.



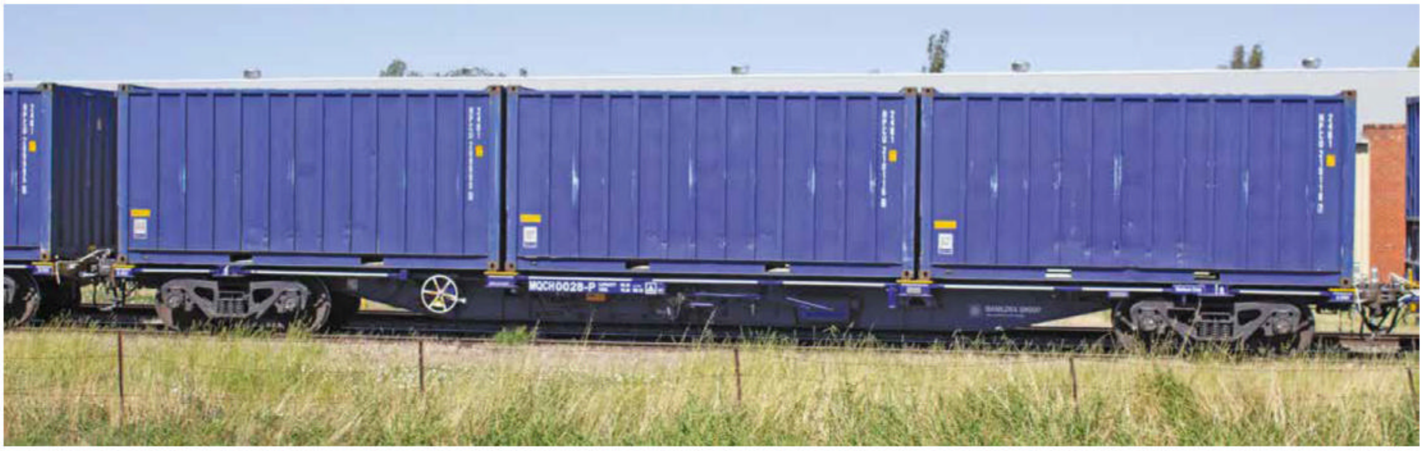
MQCH 0001-F B end.



MQCH 0092-R Junee, 4th of March 2025. Photo by Scott Fitzgerald.



Container HPCU 210042 [6], note that each container has a QR code to the left of the middle hatch. Junee, 4th of March 2025. Photo by Scott Fitzgerald.



MQCH 0028-P three TEU container flat wagon. Old Junee, 4th of March 2025. Photo by Scott Fitzgerald.

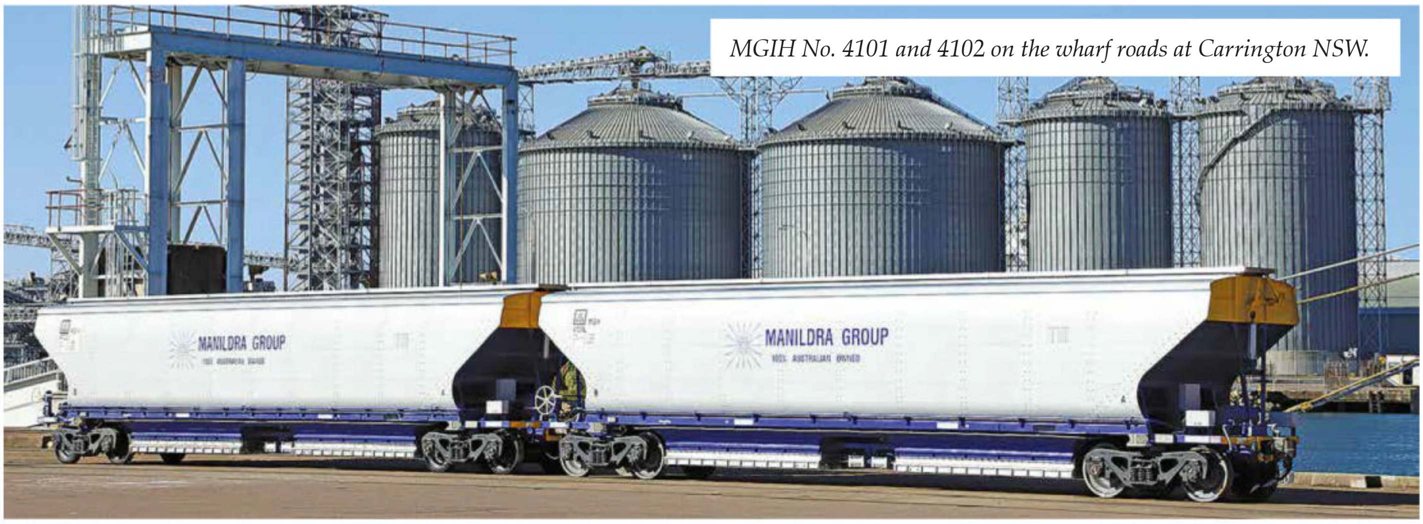
MGIH Hopper

The MGIH hoppers are set up as pairs, similar to the MGHH fleet, and each pair has a Master and Slave hopper where the Master is fitted with all the shared air brake equipment. The fleet comprises of 93 pairs with the 186 hoppers numbered 4101-4286. The MGIH fleet forms the backbone of the long-haul grain task, moving grain from all over NSW to the mill at Nowra.

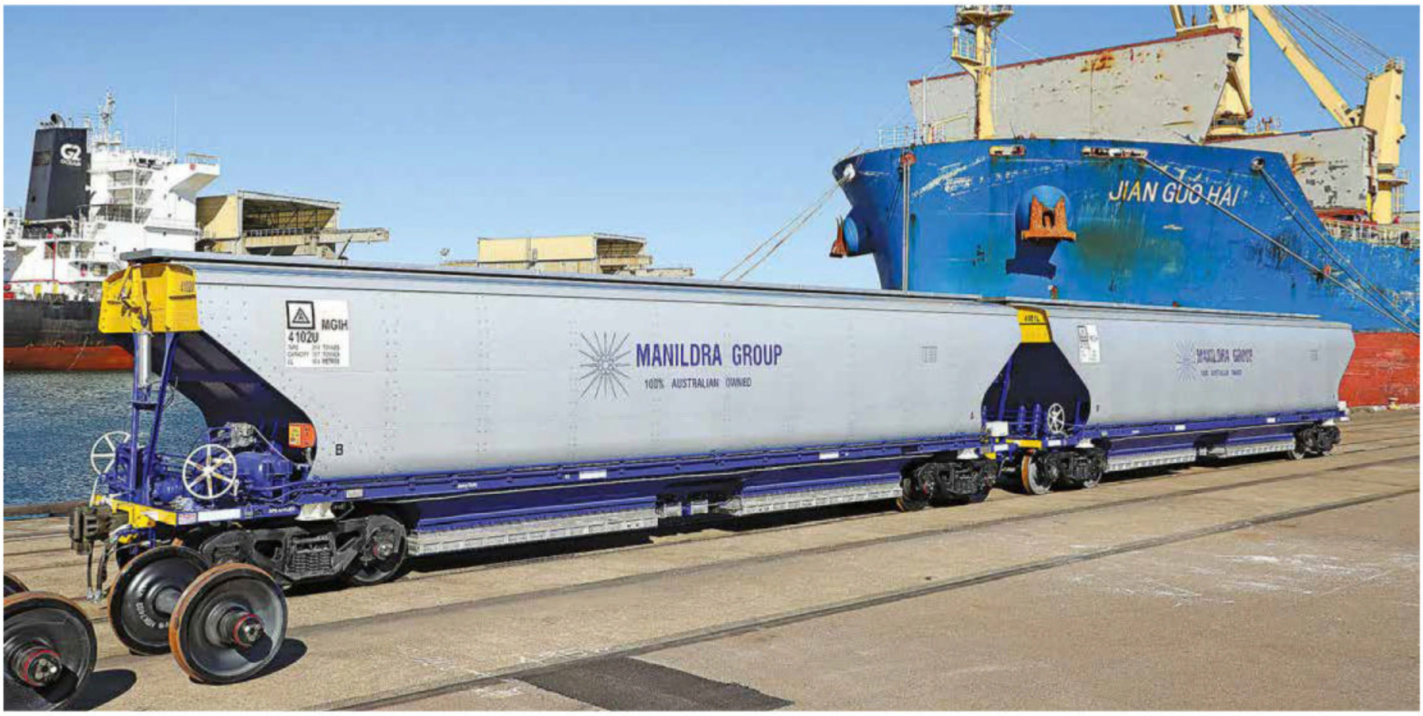
Mounted on a steel centre-sill, the aluminium hopper body provides a tare mass below 22 tonnes which is remarkable for a 100 tonne gross hopper wagon. The hopper body is primarily welded which enables it to have a rounded style about it, with rivets securing the aluminium hopper to the steel sub-structure. Due to welding marks in the aluminium, it was decided to paint the hopper body silver to give it a uniform finish.

The discharge gates are a sluice design, similar to that used on the early CBH grain hoppers. This discharge system allows for containing the smallest of grains such as canola, yet has a remarkably fast discharge time.

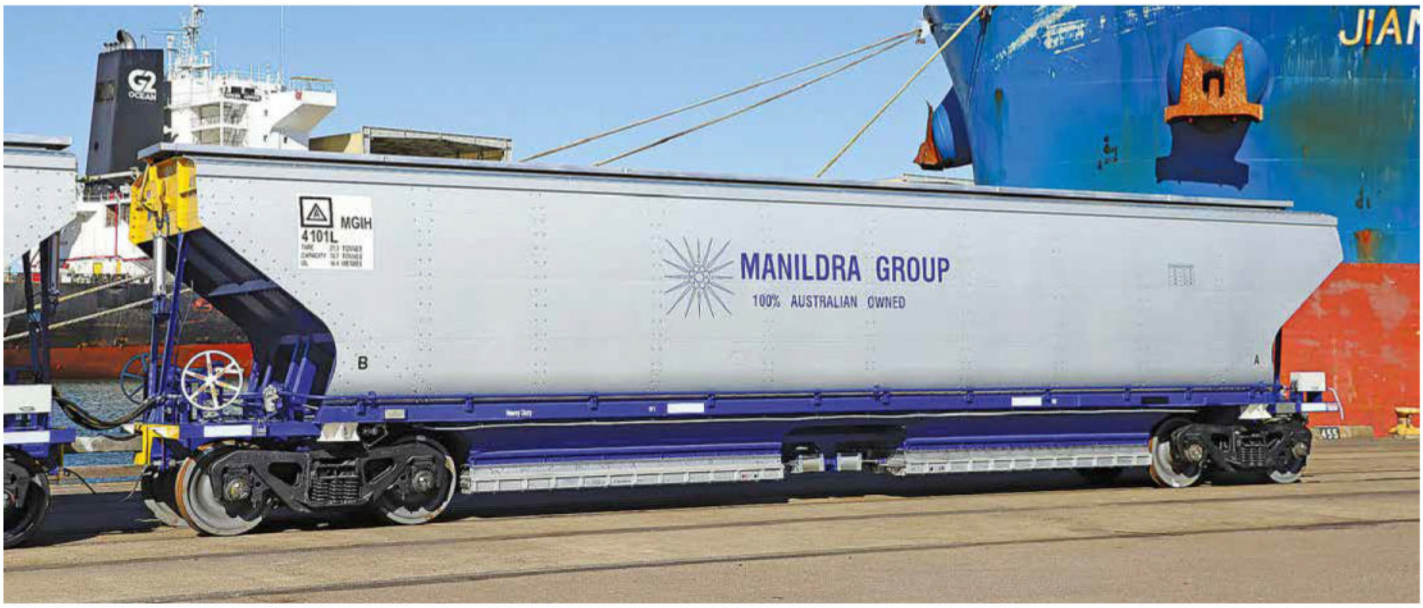
Built by CRRC Meishan, each hopper has a cubic capacity of 104m2 and each pair of wagons measures 32.72m. Unlike the MGHH, the height of the wagons are purposely limited to 3846mm to enable loading at the majority of grain loading facilities across NSW.



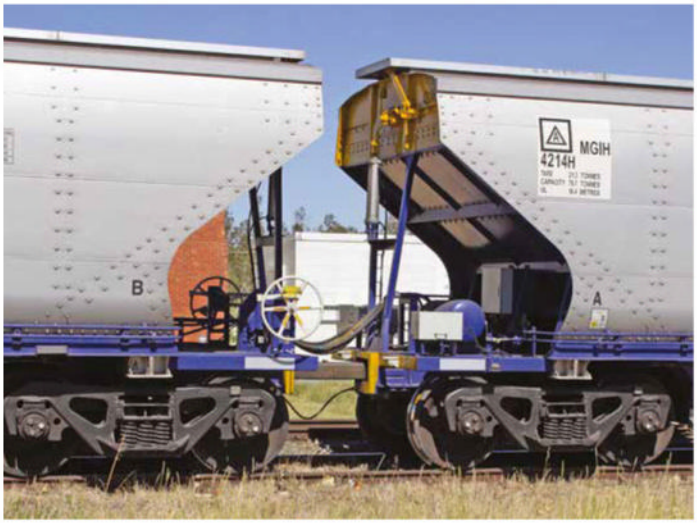
MGIH No. 4101 and 4102 on the wharf roads at Carrington NSW.


MANILDRA GROUP
100% AUSTRALIAN OWNED
MGIH
4102U
JIAN GUO HAI

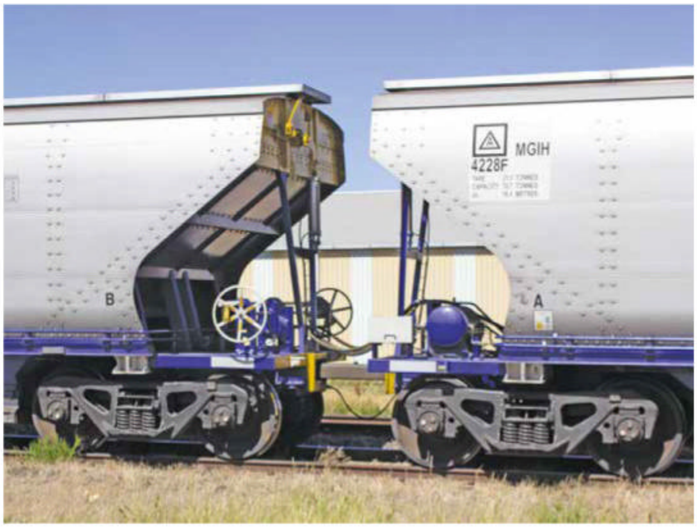
MGIH No. 4101 and 4102 on the wharf roads at Carrington NSW.


MANILDRA GROUP
100% AUSTRALIAN OWNED
MGIH
4101L

MGIH 4101-L on the wharf roads at Carrington NSW.



MGIH 4214-H 'A' end. Old Junee, 4th of March 2025. Photo by Scott Fitzgerald.



MGIH 4228-F 'A' end and 'B' end detail. Old Junee, 4th of March 2025. Photo by Scott Fitzgerald.

MGGH Grain Hopper

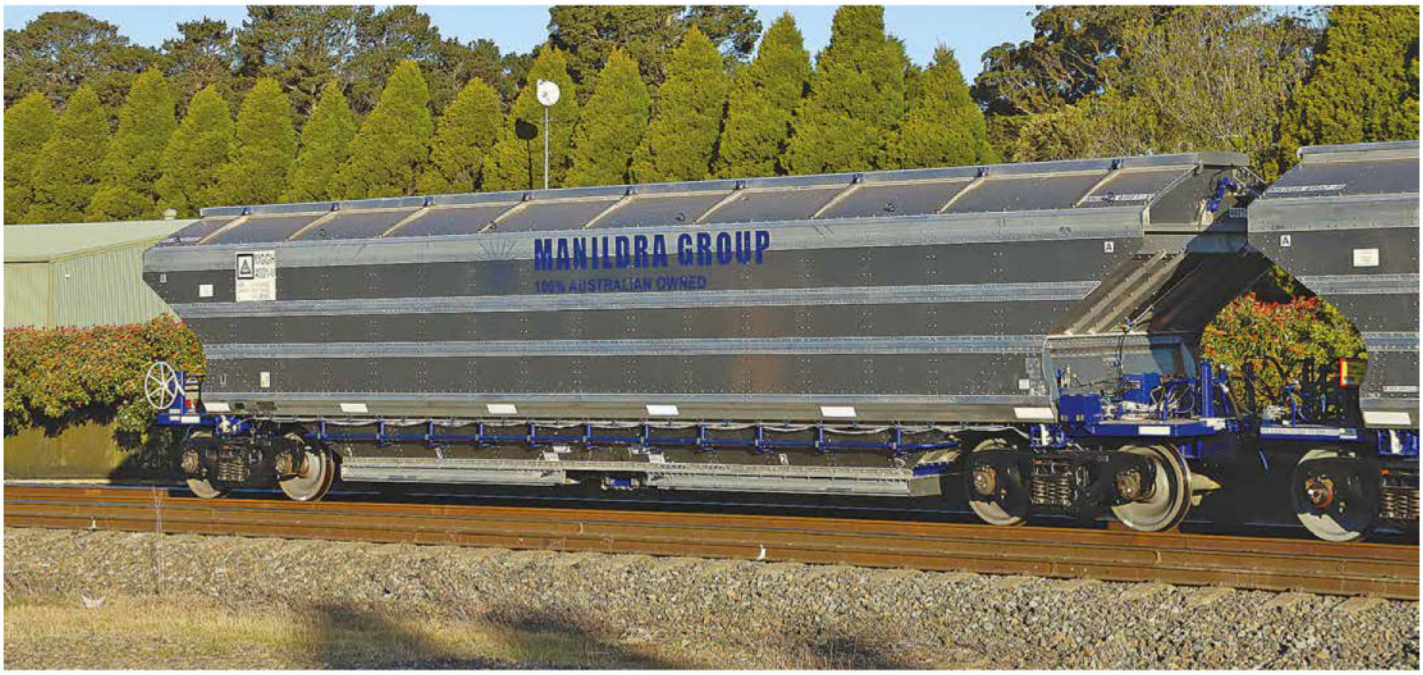
The remainder of the bulk grain fleet comprise of 36 MGGH grain hoppers (18 pairs) which are technically similar to the MGIH fleet. These MGGH hoppers were designed by UGL and manufactured by Bautou Beifang Chuangye (BFCY), located in Inner Mongolia.

The wagons are numbered 4001-4036, noting that the original prototypes being 4001 and 4002 are due to be scrapped and hoppers 4037 and 4038 will be renumbered in their position.

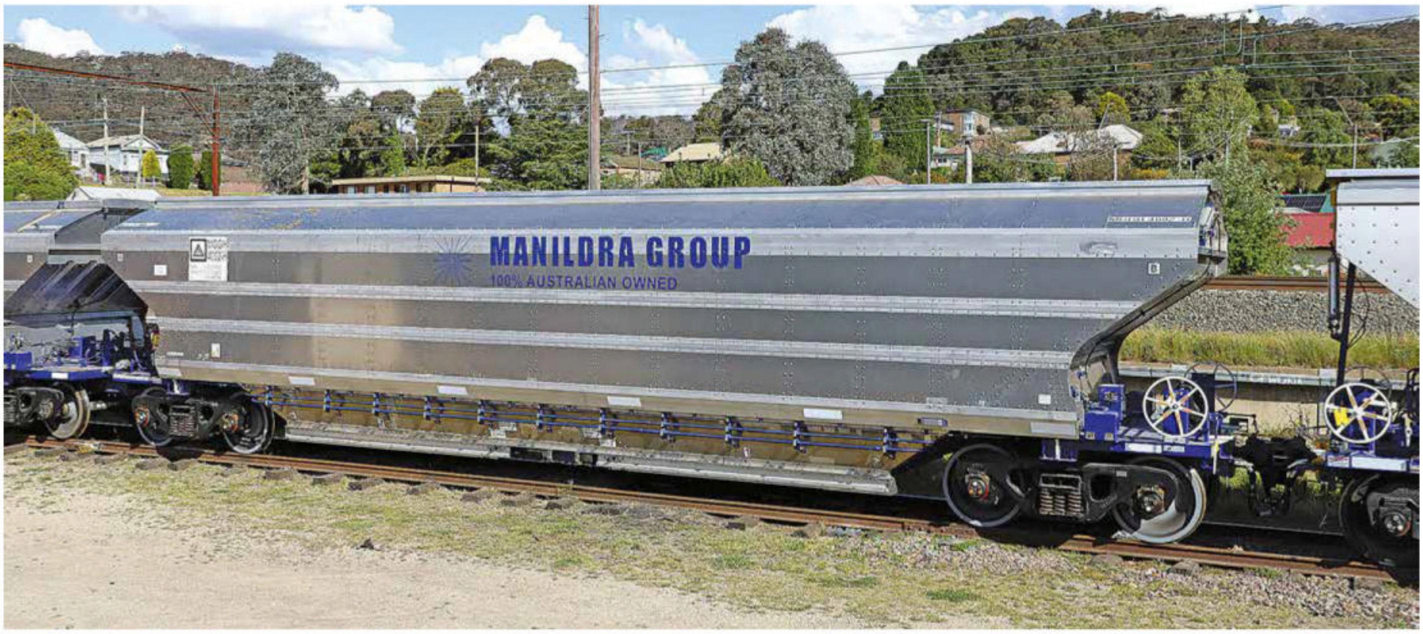
The MGGH fleet do have some notable variations compared to the MGIH hopper wagons. The MGGH aluminium hopper body construction has been riveted rather than welded, resulting in the hopper being more square sided and having a significant number of rivets noticeable. Due to the predominant use of rivets, the aluminium didn't require painting resulting in a highly reflective finish on the wagons.

With a slightly larger cubic capacity than the MGIH, the length is also slightly longer at 33.3m for the pair, with the height set at 3820mm again for NSW silo heights. The bogies are a Barber S2HD three-piece type which do not have steering arms fitted.

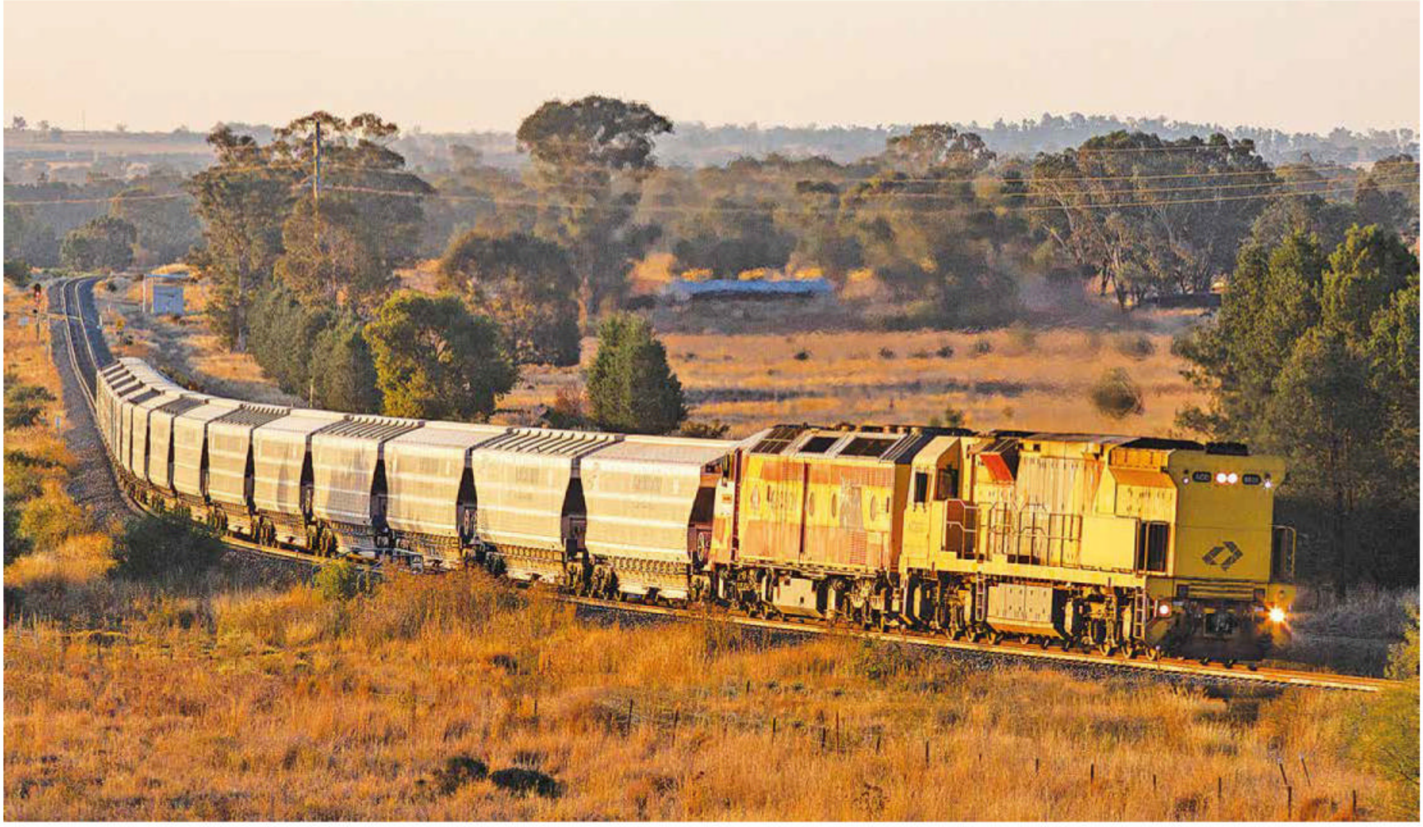
Being a smaller fleet, the MGGHs are primarily allocated to the grain shuttle service that operates in the central west of NSW, running grain from regional silos to the town of Manildra where it is ground into flour.



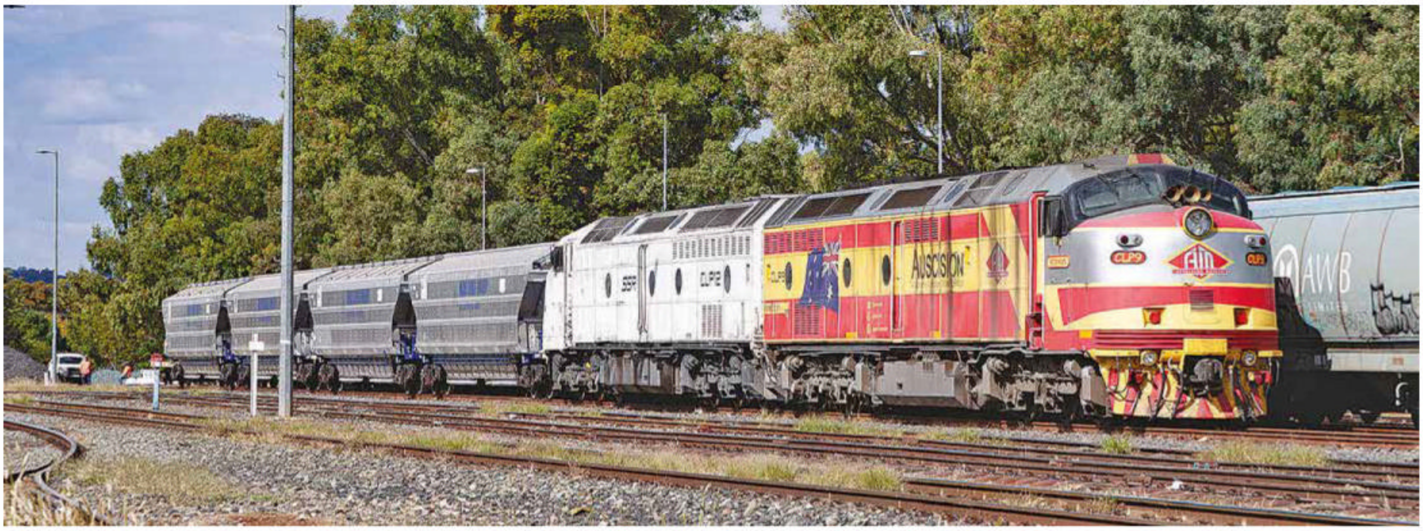
MGGH 4001-V at Lithgow.



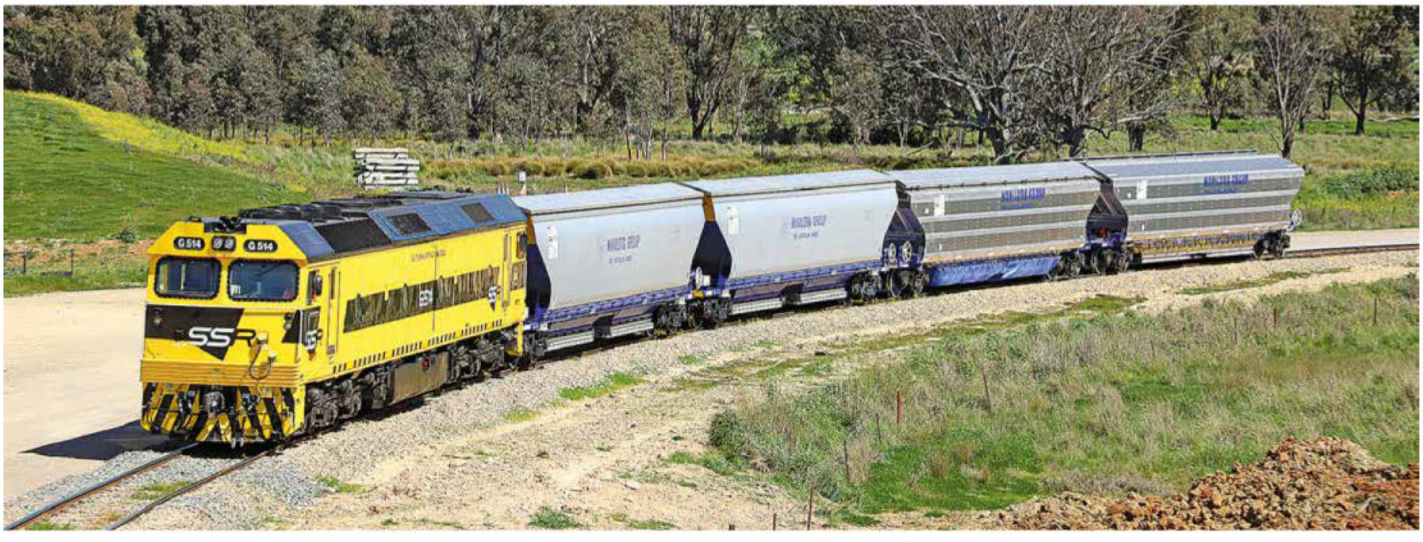
MGGH 4002-H at Lithgow.



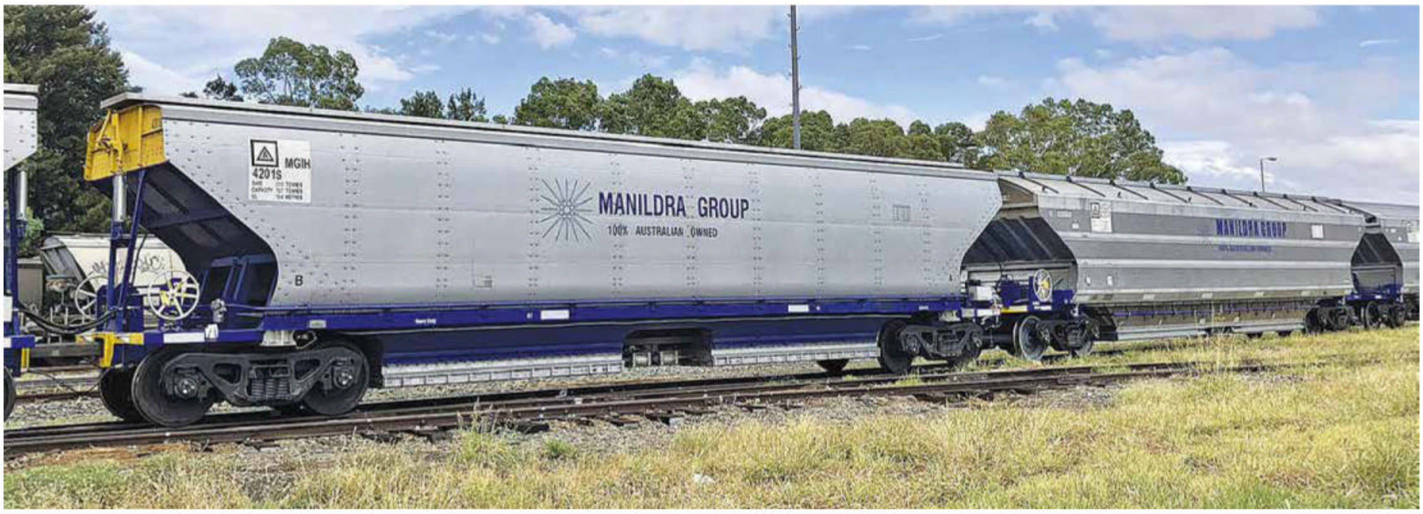
Locomotive No. ACC6031 and CLP9 'Peter Wilks' on train No. 8874 arrive at Goobang Junction with a short consist of MGGH hopper wagons on Monday,14th of April 2025. Photo by Bernie Baker.



Locomotives CLP9 'Peter Wilkes' and CLP12 'Casper' shunt MGGH hopper wagons in Parkes yard on Tuesday 15th of April 2025. Photo by Bernie Baker.

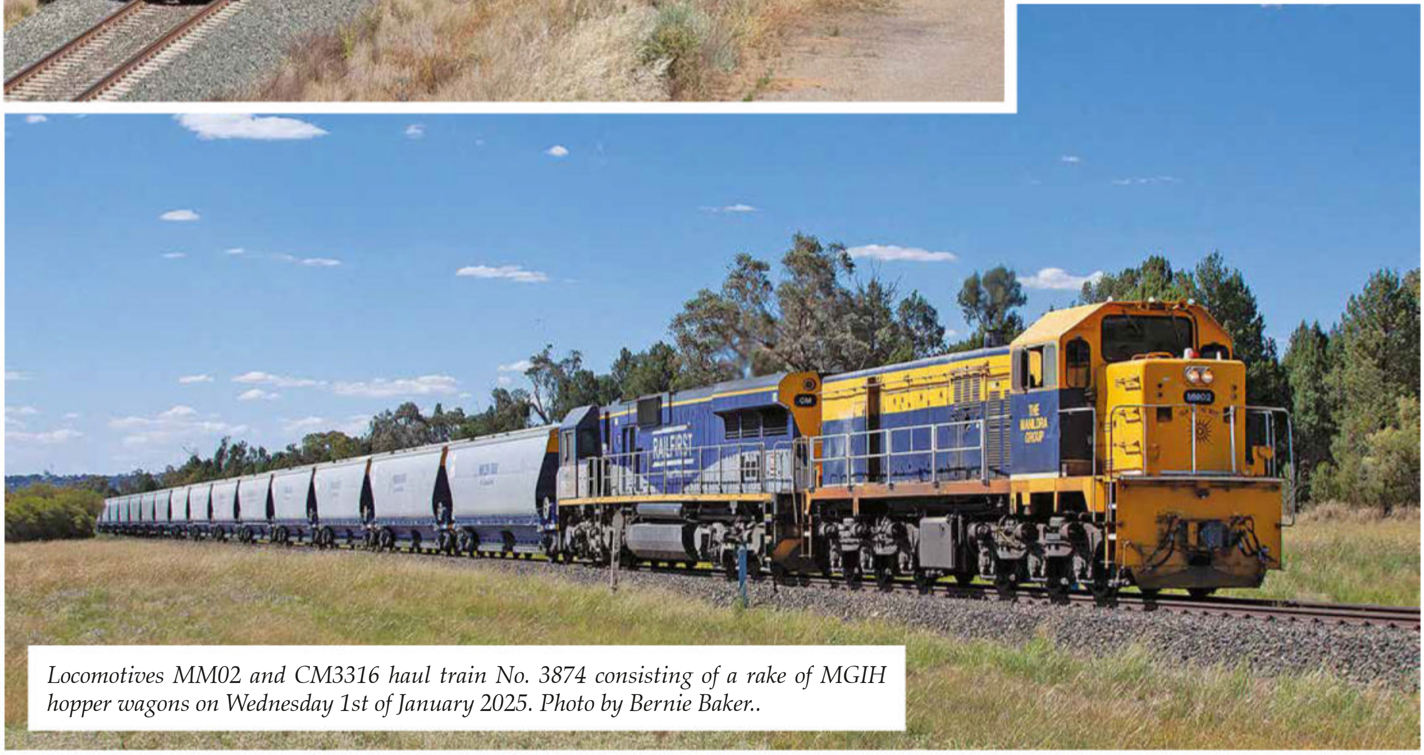


Locomotive G514 works through the AWB grain siding at Stockinbingal, with a test train of MGIH and MGGH wagons. A consist such as this would make an easy train to model.


MGIH
4201S
MANILDRA GROUP
100% AUSTRALIAN OWNED

A comparison between the MGIH (left) and the MGGH (right). Photo by Bernie Baker.

Locomotives GM10, MM01 and GM22 haul train No. 8574 departing Goobang Junction on Saturday 2nd of November 2024. Photo by Bernie Baker.



Locomotives MM02 and CM3316 haul train No. 3874 consisting of a rake of MGIH hopper wagons on Wednesday 1st of January 2025. Photo by Bernie Baker..

Tree making for the bleak mid-winter

Lee E J Styger shares his techniques for tree construction. Photos by the author

Introduction

This article is a result of a few modelling sessions at Oatley Modellers Group. A few months ago, conversations around the table turned to scenery, trees and how to move away from the 'cotton wool blobs' that are often depicted as trees on other layouts, but without breaking the bank.

I mentioned that I needed a few trees for my 'big layout' (it is about 4.5m long). Because the model is set in a woodlands theme. I thought initially that I would need about 40 trees. After making 40 trees I realised I would need about 400! This presented some challenges including not wanting 'blobs and bottle washers', and at the same time not being able to afford commercial alternatives that would have collectively cost more than the house is worth. The 'twist' (please excuse the pun in this case), is that the big layout is modelled in later autumn / early winter, where the leaves have come off the trees, and it is possible to look through the branches. So, in my case, there was no opportunity to hide a lot of the suggested detail with clumps of foam or foliage, and I needed to model many branches and twigs. Since there were few options available commercially to satisfy my needs, my only option was to hand build the lot!

A few sessions at the Oatley Modellers Group got the task well under control and resulted in a bit of a 'give it a go' session for others who had not tried to make trees this way before.

A step-by-step commentary

It is fair to say that there are many different methods to make model trees, and, like all aspects of the hobby, everyone has their own preferred method. My method for making generic, leafless trees is described below.

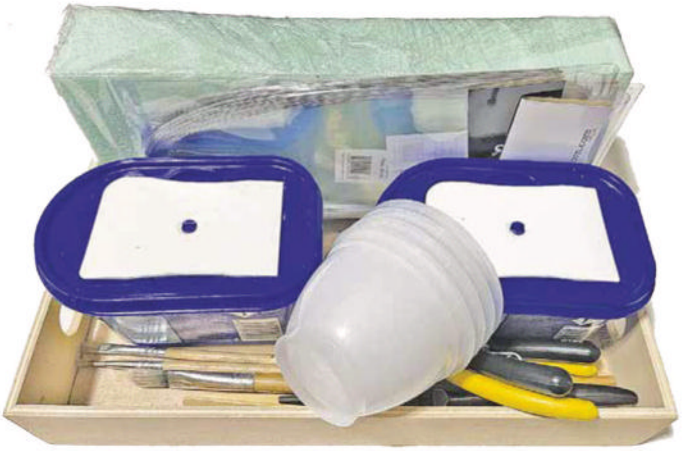
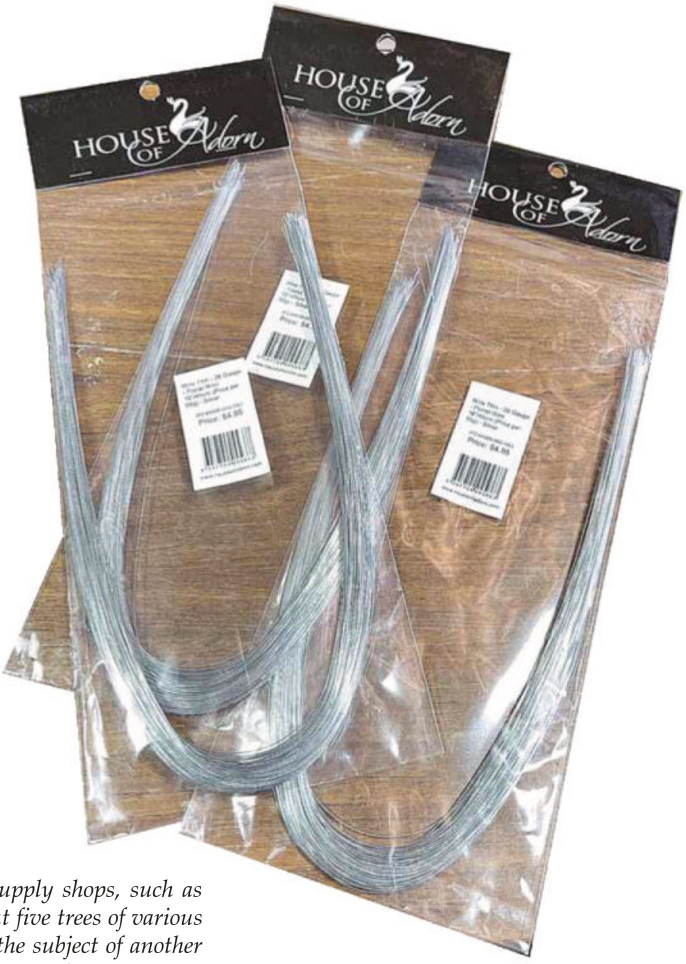


Figure 1. The 'kit of bits'. The materials and tools necessary for making the trees is mercifully small and inexpensive. I use 'florist wire' for the basic armature of the tree. This wire is typically soft iron wire; it is easy to twist to create certain forms and its stays in shape without springing back. Some pliers and cutters to do the necessary cutting and forming. The filler is used later to form the bark of the tree, and the pots and brushes are used to apply the filler. The green foam was a later addition to the kit of bits, enabling the finished trees to be transported, without interlocking with each other or anything close by!



◥ *Figure 2.* A closer look at one of the brands of florist wire. Most art supply shops, such as Eckersley's sell this wire in handy packs. On average, a pack will make about five trees of various sizes, so long as you don't want 70ft O scale trees (perhaps this should be the subject of another article at some point in the future). As such, the material is not really that expensive pro-rata to the yield per-pack. One point of note is that this pack of wire is quite a fine gauge and another pack I use has a similar 'thin' gauge. There are other packs with much thicker gauge wire, but the thicker gauge materials are somewhat harder to use and do not result in a 'fine' appearance.

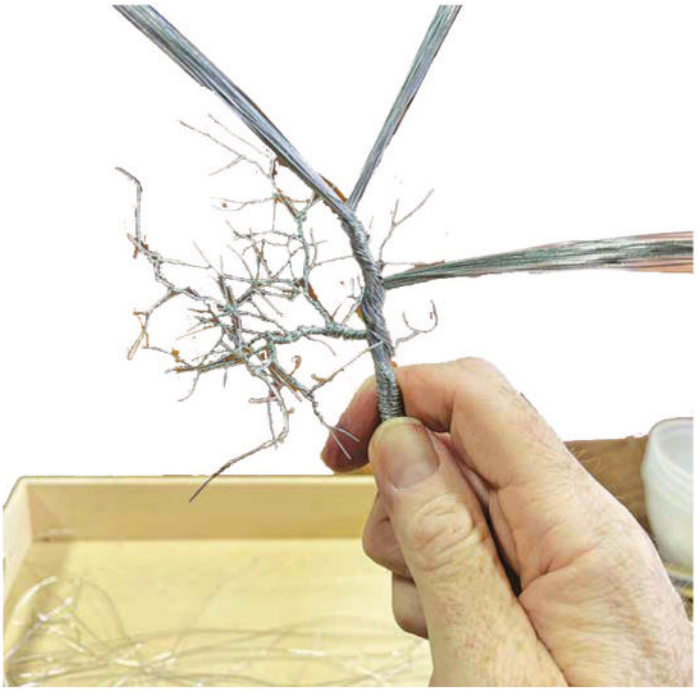


Figure 3. *The pack of wire is opened and all of the strands are collected together. A single strand of wire is then wrapped around what will become the trunk of the tree (see wire by my thumb in the picture) and holds all the other strands in place whilst construction begins. The trunk is then twisted together and periodically, and as randomly as possible, a group of strands is taken to one side to form a branch of the tree.*

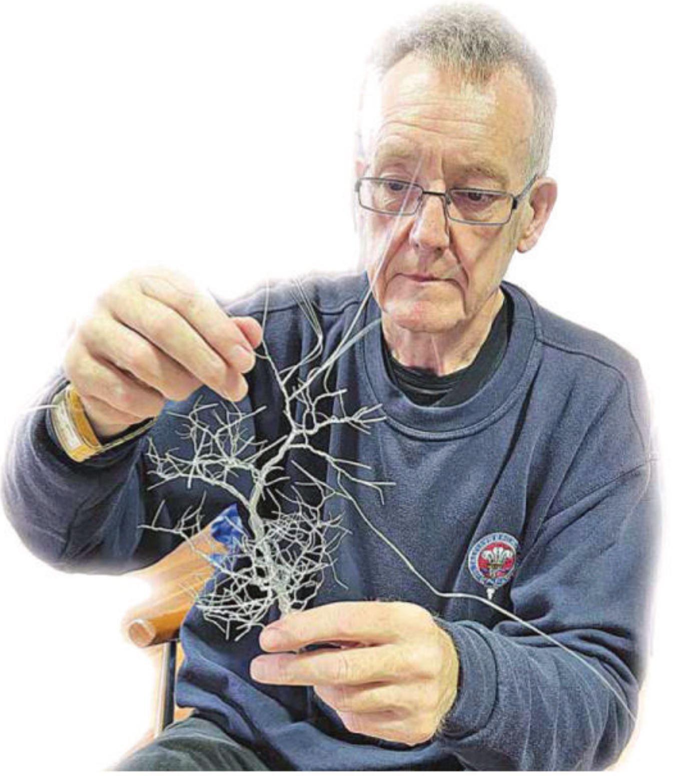


Figure 4. *Working from the base upwards the branches are twisted together. In 7mm scale (1:43.5), a rule of thumb tends to be to branch off every 5mm to 10mm - remembering that the branches will become thinner the closer you get to the top of the tree. This all sounds very simple, and it is, but many people starting off making their first trees typically leave the branching too late. As a result, they are left with a spindly, willow'-like form. It simply takes a bit of practice, and along the way, any bad trees can always be placed behind the better ones on the layout. Overall, the concept is to keep filling the gaps in the tree with more branches, as indeed a tree would have done in nature.*

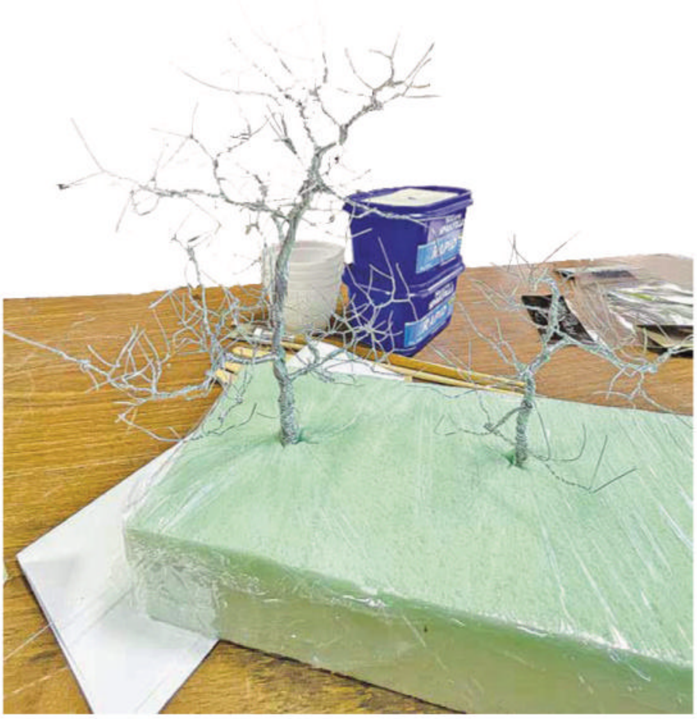
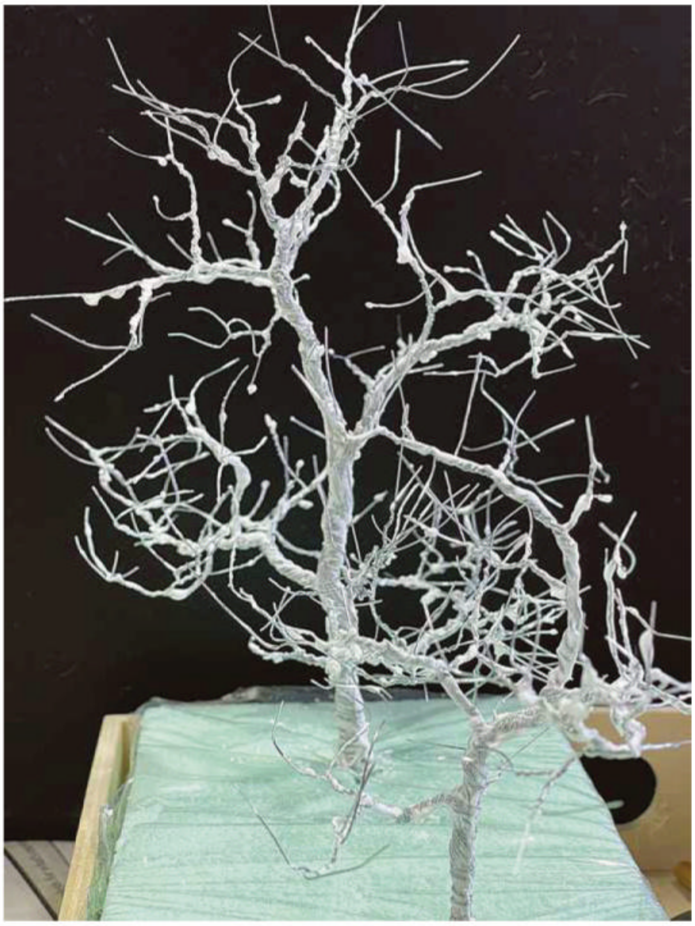


Figure 5. *As the tree progresses, a lot of offcuts are created from the trimming of the branches. These should be collected, because they are able to be re-used as the stock for smaller trees and bushes.*



▶ **Figure 6.** *Once the basic armature of the tree has been constructed, the next stage is to infill that armature to create a bark-like form and hide much of the evidence of the twisted wire. I use Selleys Spakfilla (a pre-mixed, fine-grade, crack filler) that is readily available from almost any hardware store and some of the large supermarket chains. Once again, there are many schools of thought (and comment) around what you should and shouldn't use in model making, but I must admit I love this stuff. It is easy to use, does not 'skin' like so many fillers, takes a bit of time to cure and so enables some modelling time. Above all, it is soluble in water and in this context can be brushed on with a consistency of cream, and it stays in place.*

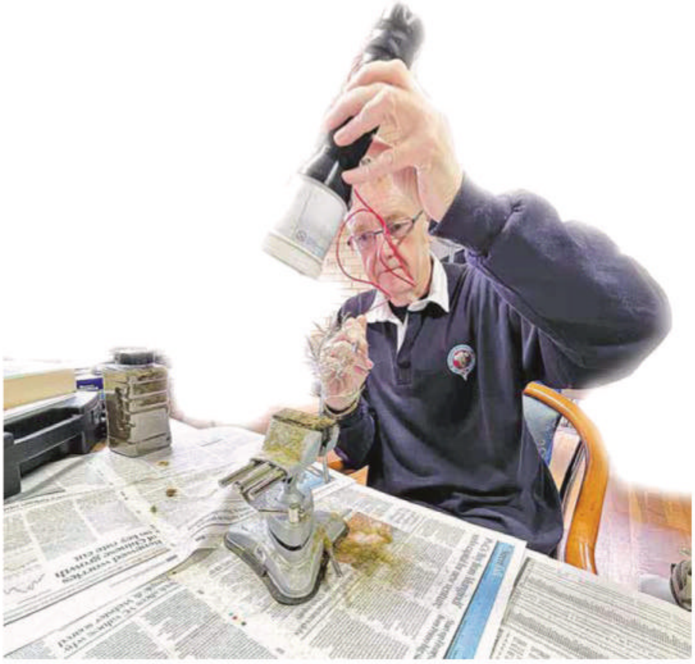


Figure 7. Even with the armature covered in the bark, the tree still lacks the finesse of the real thing with a multitude of smaller twigs. Traditional modelling axioms would have us cover the structure with horsehair or similar and then flock it to represent leaves. My journey was different. I wanted to model autumn / winter trees with no foliage, and as such needed to depict finer twigs on the branches. The solution was to use a static grass applicator and, after coating some of the branches in glue, let the technology do its thing.

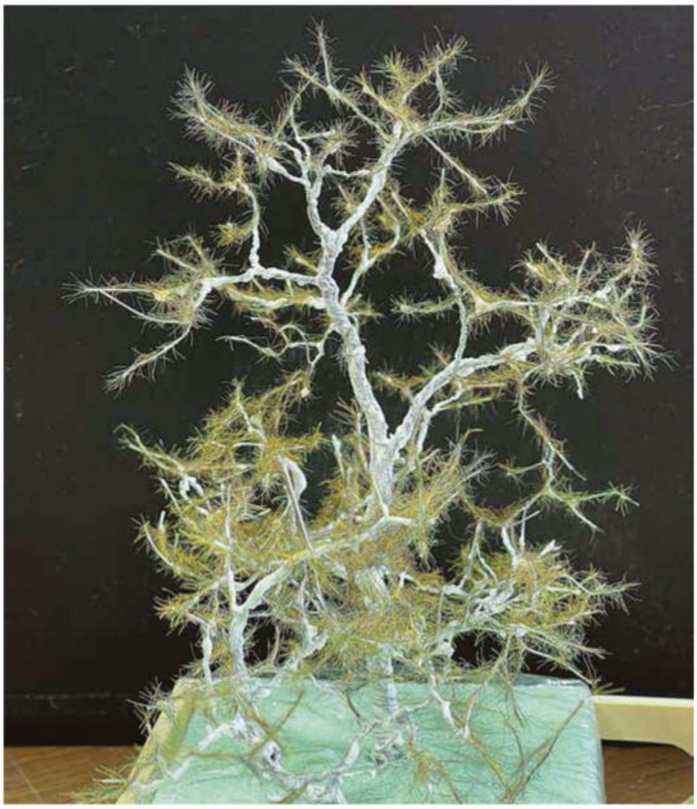


Figure 8. In principle, the static grass technique works remarkably well. I did, however, learn that it was best to be sparing with the twigs. As this photo demonstrates, a shake or two more with the applicator and the tree goes just a little too stubbly. But no need to worry, any rejects can simply be placed towards the rear of the 'forest' and all is well.

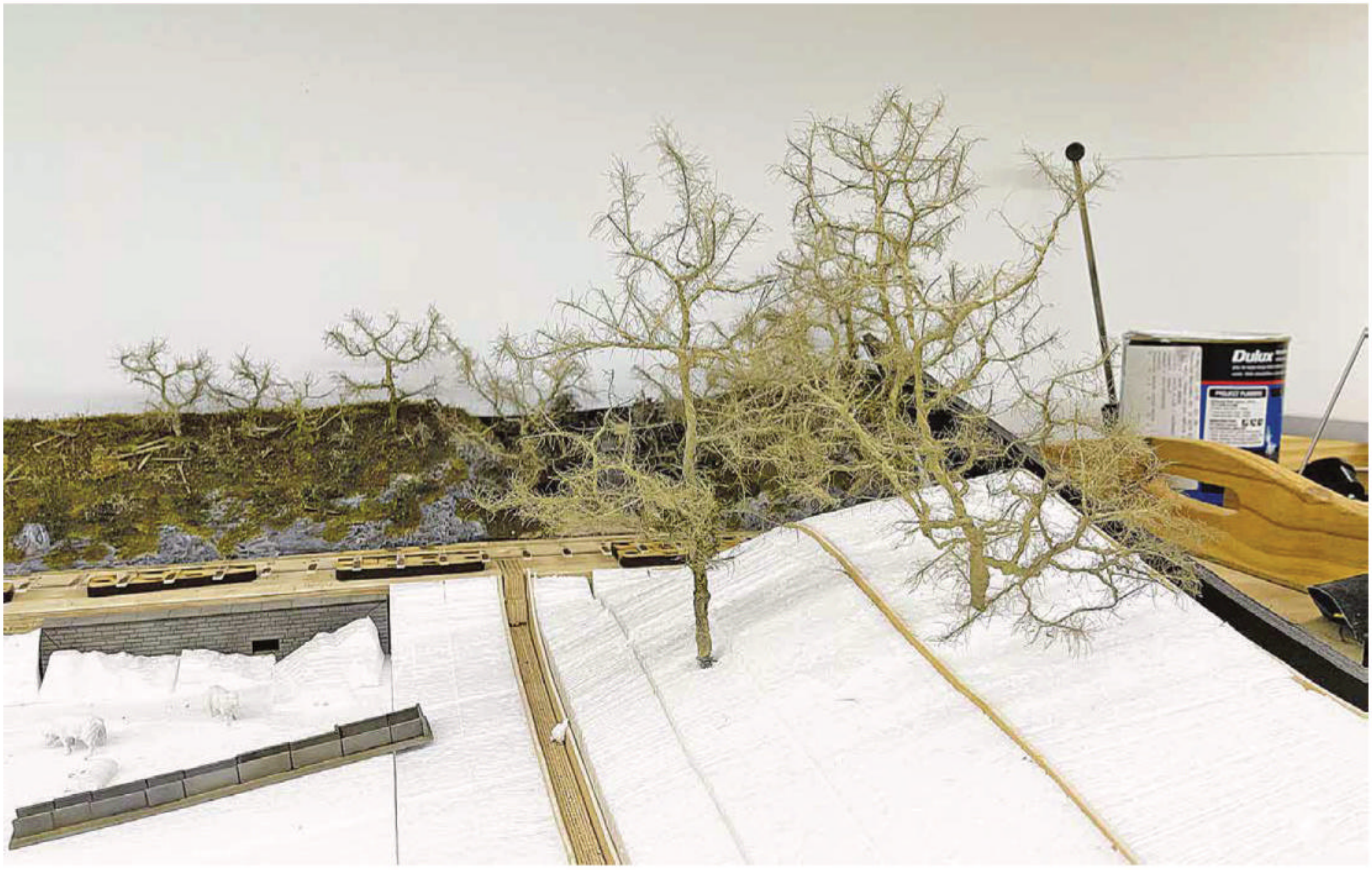


Figure 9. Painting is a two-stage process. Firstly, the whole tree is sprayed with a grey primer from a rattle can. A second, very light, overspray is then applied of either a tan or dark / dirty yellow. This technique allows the grey primer to show through. Grey tones by themselves do not appear to work and browns by themselves certainly don't. This image shows a work in progress of brown and dirty yellow toned trees 'clumping' together on the layout. The clumping offers the best illusion to the naked eye, because of the random intertwining of branches, tones and twigs from several sources, as it would be in the 1:1 scale world. In truth, the trees look 'OK' as individual entities, but the clumping, even if with a couple of smaller specimens, lifts the model.

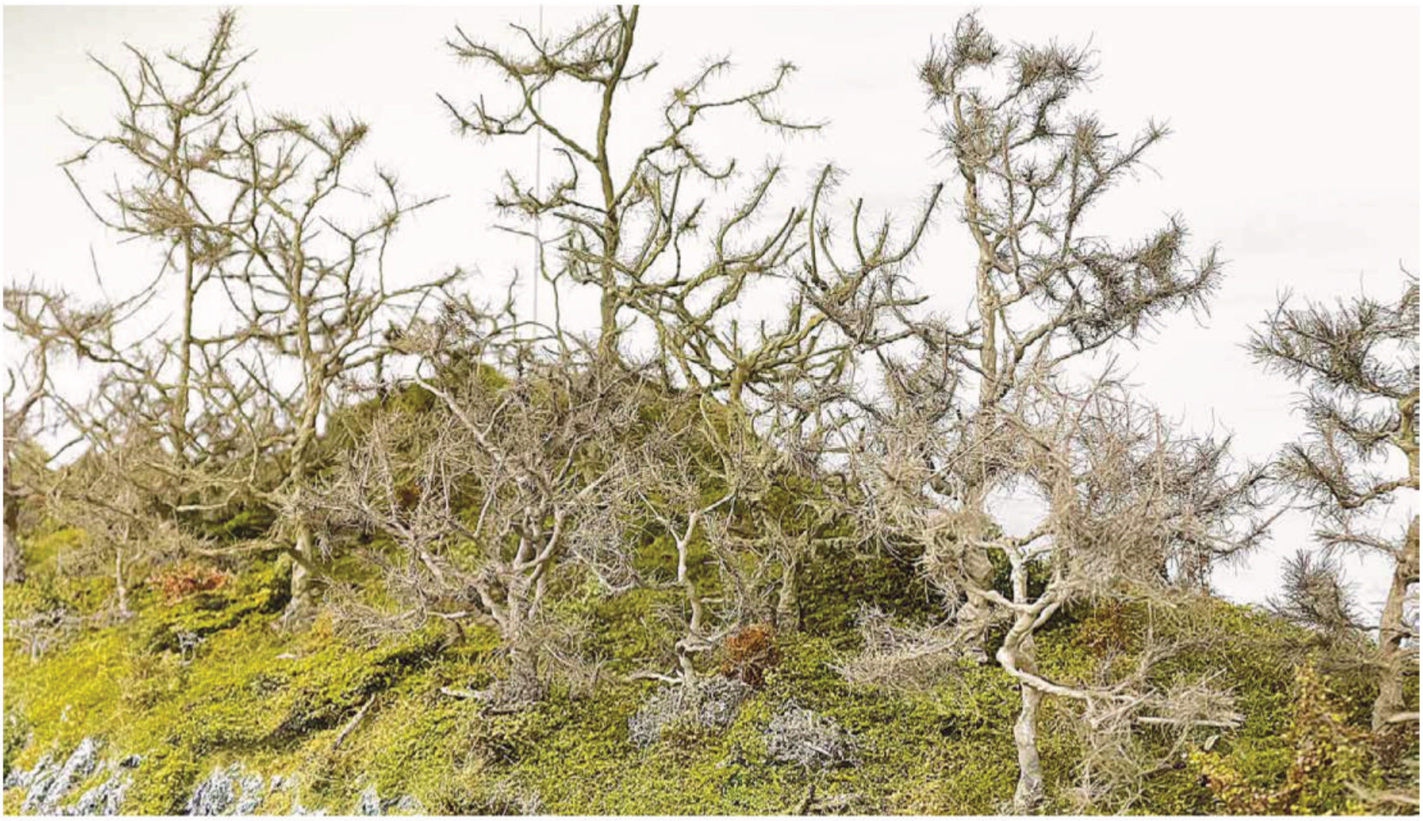


__Figure 10.__ Serious clumping and texturing is shown in this rather unflattering close-up of the effect of multiple trees coming together. Not that you would notice, but there are over 40 trees in this image.

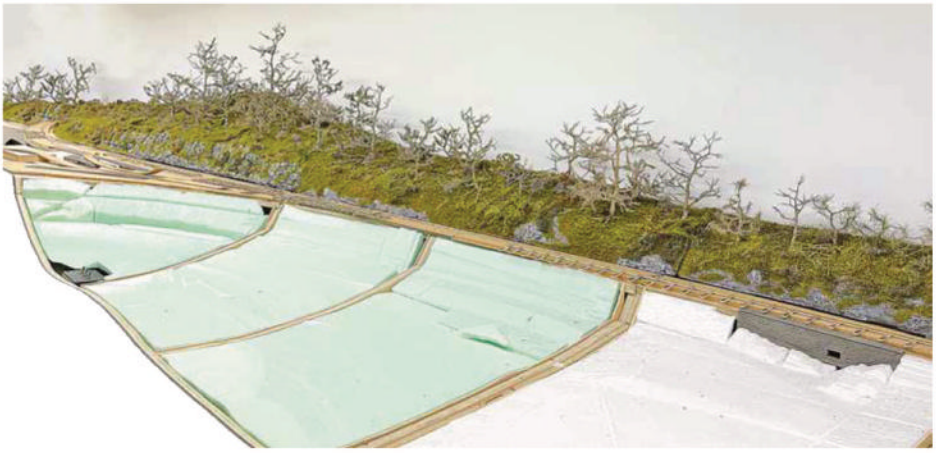


__Figure 11.__ The back scene coming together. The trees are beginning to be dispersed along the rear of the layout. Another 50 or so trees will be added to the far end and then a final 'frontage' of more finely detailed trees will be put in place, in the front section of the layout where it can be seen. Experience (trial and error) has indicated that as soon as a new tree is planted in front of an existing one, the existing one 'blends' into the new one, offering a much more convincing scene to the eye. Slightly out of scope of this article, but worth a mention, is that the scenery shown in this image is all modular. This means that there are three self-sufficient sections that were created off the layout and then placed onto the baseboards at a later stage (i.e. how it might be done for a building for example). The ongoing intent is that these modules will later be blended to the track area and other modules for the front section will be constructed likewise. This was initially done by accident insofar as I built the frames and infilled them with foam.

Conclusion

Tree making has proven to be a cathartic process, where a tree can be knocked out in about an hour of easy modelling and conversation time, anywhere at all. The average materials cost of a tree using this method is about $2.00 AUD, and it is therefore an inexpensive modelling solution.

The method does offer an opportunity to suggest detail in the tree and move away from cotton ball blobs. I have also augmented some of the smaller armatures with leaves to represent evergreen bushes. All that is required is a quick spray with some matt varnish and a light sprinkle of 'leaves'.

This works remarkably well allowing enough light and airiness around the sample.

The big lesson for me is that my next layout is likely to be an urban theme. I think I may have had enough of trees for a while and bricks sounds like a good option. What could possibly go wrong!

About the Oatley Modellers Group

Participants of the Oatley Modellers Group have been meeting for modelling sessions every second and fourth Sunday at Oatley for many years. The Group is informal and gives an opportunity to share ideas, stories and tips, and get a bit of modelling done. Although there is no set agenda, some of the themes covered more recently include rolling stock construction, lightweight baseboards, finishing 3D printed models and DCC sound.

Recently we scheduled a workshop on making New South Wales Government Railways (NSWGR) D wagons, from the master Computer Aided Design (CAD) file produced by myself.

All are welcome to the Oatley Modellers Group. For further information about meetings, please contact:

Michale Lane
0498 465 782
malane6033@gmail.com

Scratch-build a locomotive chassis

Stephen Curry scratch-builds a simple steam locomotive chassis in N scale. Photos by the author unless otherwise credited

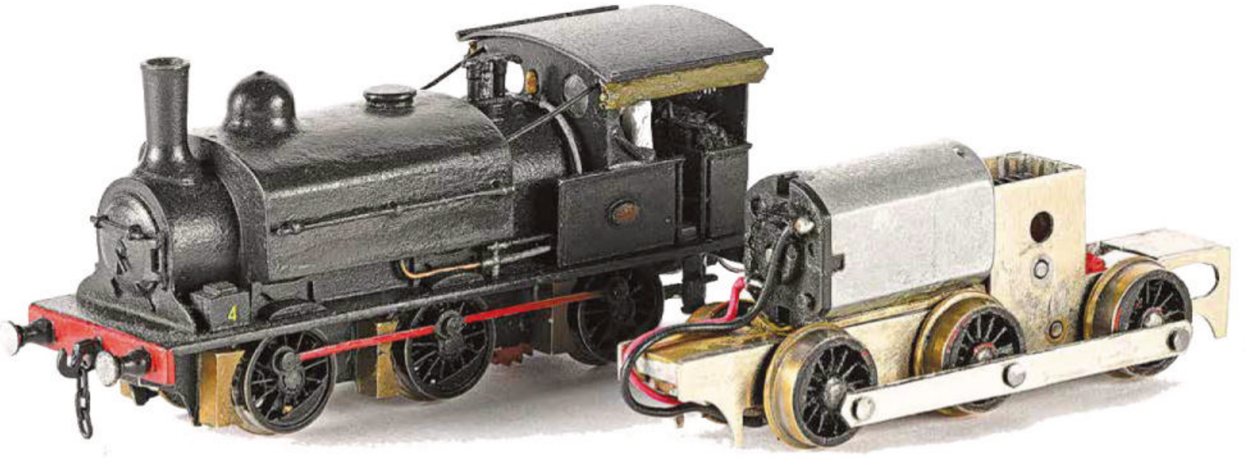


Figure 1. *Illustration of a completed N Scale DCC 0-6-0ST alongside a smoothly operating but unfinished DC chassis that is suitable for this body. A decoder will be located alongside the motor and housed in the side of the locomotive's tank. Photo by Mark Jesser.*

Overview

My modelling in 1:160 N scale is inspired by the coal railways of J & A Brown, a company that was based at Hexham (near Newcastle) New South Wales. With no suitable ready-to-run locomotives or rolling stock available, I decided to try my hand at scratch building. My initial efforts were the removable hopper wagons of J & A Brown using scratch-built styrene hoppers on modified PECO chassis; to date I have made over 140 hoppers of various types to represent different eras. To control rakes of these hoppers, I needed locomotives.

For those interested in scratch building locomotives, do not be deterred by inexperience. Skilled machinists will probably cringe at some of my techniques because I do not have comprehensive workshop or engineering skills, although I trained as a dentist so I do use small dental burs and some instruments. Having said that, quality small round burs, twist drills and instruments are available through Australian jeweller's supply houses which have good online catalogues and efficient mail services. You do need a suitable workbench with good lighting and you need magnification. A small vice and good quality files are essential as is a handpiece (e.g. a Dremel). I have a very small, basic lathe but you could achieve excellent results with a drill press. Basic soldering skills are essential – good flux and practice are most important.

While chassis construction may sound daunting, the most important asset is the ability to problem solve. Ask yourself:

- What do I want to build?
- What skills do I have?
- What tools do I have?
- What materials do I have?
- How will I achieve my goal?

Using this approach and the techniques that I will explain, some of the larger locomotives that I have built have run non-stop for stints of eight hours and have covered over forty kilometres guiding trains of twenty-five hoppers and a brake van.

Chassis construction

Planning

To develop skills in locomotive chassis building, I recommend that a first chassis project should be an 0-6-0, inside cylinder, tank configuration so that cylinders, outside motions (apart from coupling rods), pony trucks and tenders are not required (see figure 1).

Additionally, an electrically 'neutral' chassis, i.e. with contact wipers to the wheel tyres, rather than a split chassis design, is recommended as this is much simpler to construct. Also, do not worry about a DCC decoder at this stage, just aim to get the chassis running smoothly on DC. If an 0-6-0 is not your locomotive of choice, I still recommend this configuration for your first chassis but don't worry about the body – just use a suitable weight adhered on top with Blu-Tack™ or similar, to test the chassis.

The first step is to research the locomotive that you want to build. Having scale drawings of a locomotive is ideal, otherwise dimensions must be derived from photos and other sources. Next, suitable motors, gears and wheels need to be sourced. I have found that Fleischmann spare parts are suitable but other manufacturers or sacrificial chassis are alternative sources. For this N scale locomotive, I used Fleischmann gears with both 9 teeth and 20 teeth (part No. 567135), a worm gear (part No. 567608) and spoked wheels (part No. 517066 deep flange or No. 517094 shallow flange, whichever is available, but deep flanges can be easily turned down). The motor is a simple three pole type available from BadgerBits (10mm across the magnets, 8mm across the flats and 16mm long across the bearings with a 1mm diameter shaft), yet any suitable gears or motor will suffice.

Having researched the locomotive and sourced parts, the next task is to plan the configuration of the gear train so that everything will fit within the locomotive. To do this, I source and print an accurate scale view of the locomotive which I paste to a piece of 6mm Medium Density Fibreboard (MDF) (see figure 2). This

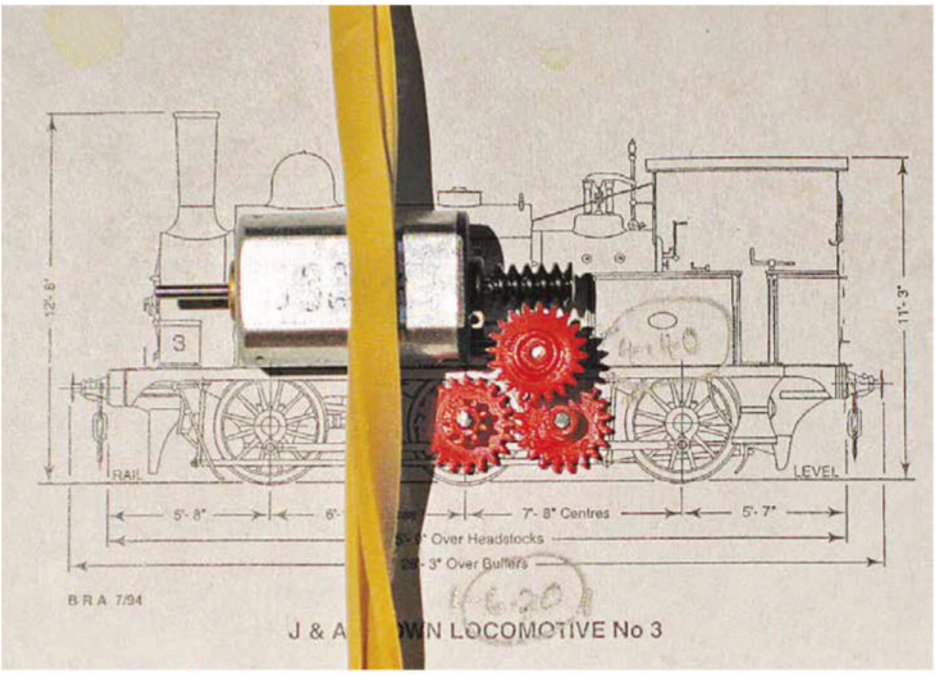


Figure 2.

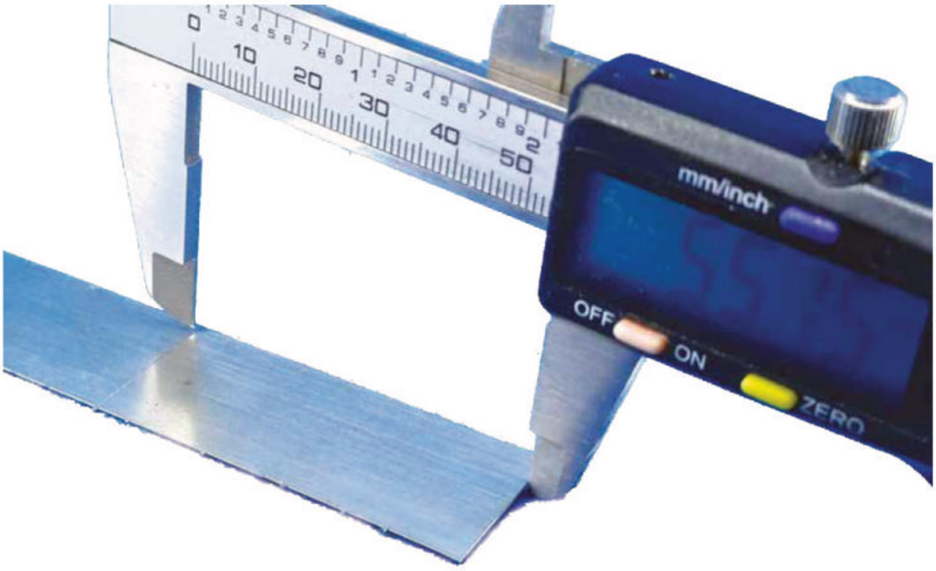


Figure 3.

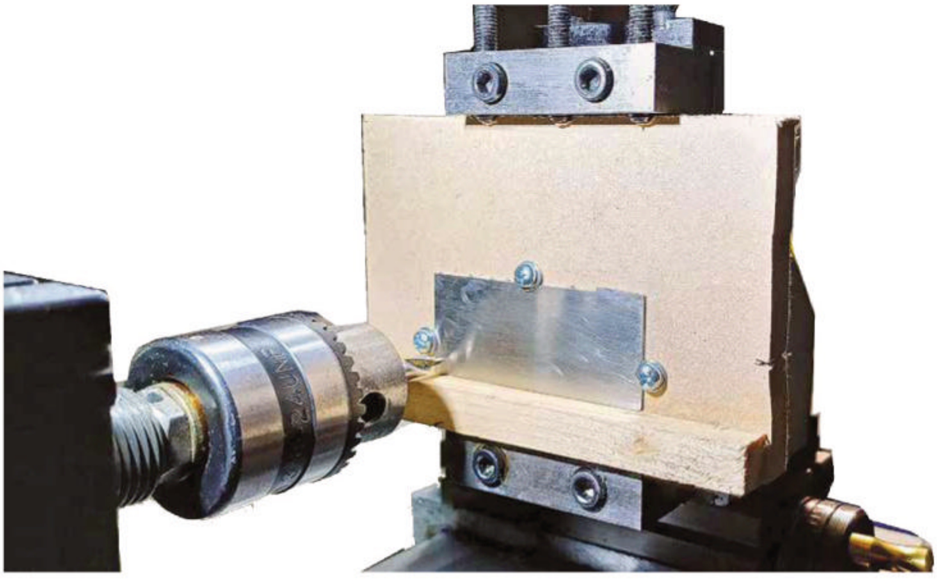


Figure 4.

allows me to plan my gear train and to prove that it will work, within the constraints of the body, by using suitable pieces of piano wire to act as axles that are placed into holes drilled into the MDF. Note: aim to have the gears mesh by 50% of the tooth height. If the meshing does not work properly, then make a new board and reposition the axle holes. I have always incorporated an intermediate gear to derive a reduction ratio of 44:1, thus giving very good low speed performance. When satisfied with the meshing, the position of the holes can be measured for the chassis sides. Alternatively, the accurately measured dimensions of the gears can be increased by 10x (so a millimetre becomes a centimetre) and using a compass and ruler, the gear train is drawn on paper with appropriate meshing, the gear centres measured and the dimensions subsequently reduced by dividing by 10 to give actual spacings. Of course, if you have the skills to do this in Computer Aided Design then do so. I just use techniques that are simple, cheap, effective, and can be used in a very basic modelling environment.

Chassis sides

For the chassis sides I usually use 0.3mm thick nickel silver although brass will suffice. To cut the pieces of nickel silver I score the metal with the tip of vernier callipers that I have sharpened to a point (see figure 3).

The scored line is deepened with a 'P' or laminate scorer then the sheet is bent back and forth along the line until broken. Two suitably-sized sheets are soldered face to face, cleaned of excess solder, then the sides are filed straight and squared to each other. To achieve a straight edge, I place the assembled piece into a small vice and carefully file to the surface of the jaws. At this point I mount the soldered assembly in the vertical mill of my lathe and use the mill's indexing to locate the positions of the bearings for the gears and driving wheels (see figures 4 and 5).

Note in figure 5 that I have drilled a zero point (datum point) to re-establish measurements if required. If you are using a drill press, then accurately transcribe the positions of the bearings to the assembly and accurately centre punch before drilling. For bearings I use brass tube with an inside diameter (ID) of the correct size for the gear and wheel axles. If a suitable size is not available, I use a tube with a smaller ID and ream this out at a subsequent step. For N scale I have found that K & S brass tubes No. 9832 with an ID of 1.55mm and No. 9820 with ID of 1.1mm are ideal. Both these tubes have an outside diameter of 2mm so the holes for the bearings in the chassis sides are drilled to this measurement. To assist with filing the sides to the required shape, I also drill extra holes (the smaller holes in figure 6) at what will be the corners of the chassis sides to act as a filing guide. The chassis sides are now filed in the vice to their final shape, separated by unsoldering, and cleaned (see figure 7).

Assembly

The chassis is now ready for assembly. For N scale, the chassis sides will be separated by 6mm between the inside faces. To maintain this dimension, 6mm lengths of brass tubes with an ID of 2mm (K & S No. 9833) are cut and will be slipped over the bearing tubes which in turn are cut to approximately 12mm so that they protrude beyond the chassis sides (see figure 8).

You may notice in figure 8 that the spacer tubes have a hole drilled halfway along their length. These tubes are assembled with the holes facing the upper surface of the chassis to assist with solder distribution within the bearing assembly. Afterwards, the holes are cleaned out and a small hole is drilled through to the axle space to assist with oiling. The assembled chassis is mounted in a small vice with matchstick packing between the chassis sides and the vice jaws to act as heat insulators. Suitable piano wire lengths are inserted in the bearing tubes and the ends of the piano wire are retained by strips that have been drilled to the same spacing as the bearing holes (see figure 9).

The lengths of piano wire are seated on the jaws of the vice, assuming that the jaws are level with each other. Great care is needed at this stage to ensure that all pieces are square – do not rush this step. Once satisfied that all is ready, solder all the joints that you can reach, avoiding getting solder on the piano wire. Other joints can be soldered once the chassis is taken out of the vice. Previously soldered joints should be protected against melting with wet cotton wool.

Additional square 'U' shaped spacers will be required (see figure 10) and these can be hand wrought or, conveniently, K & S manufacture 6mm square tube (No. 9854), pieces of which can be sectioned into 'U' shaped parts and used to support the gear tower, motor mount and locomotive body.

These are soldered into the chassis (see figure 11), once again taking care that previously soldered joints are protected. The bearing tubes for axles that will support gears are identified and cut so that the gear fits comfortably between the remaining bearing stubs (see figure 12). The gears may need to be offset slightly from centre so be mindful of this when cutting the tubes (described below). The excess lengths of tube on the outsides can be filed to the chassis sides, the sides cleaned and all parts, especially the surfaces that the gears bear upon, should be polished.

Axles and gears

Axles of a diameter suitable for the gears are now prepared from polished piano wire or stainless-steel stock. The bearing stubs and the gears may have to be reamed to accept the axles, and if required this should be done carefully. The intermediate transfer gear will need to have the smaller gear removed so that it does not lock with the opposing gear. To retain as much material as possible to support the gear on the axle, I mount the gear on a suitable piece of piano wire and hold the assembly in a pin vice such that the gear is free to rotate. I then bring a rotating diamond or abrasive disc to the gear and with the abrasive rotating the gear, gradually wear the teeth away by grinding at an angle across the teeth (see figure 13) until clearance from the teeth of the opposing gear is achieved. The gear

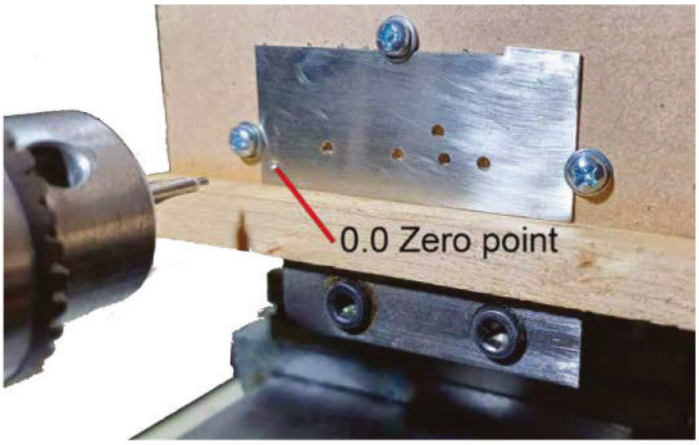


Figure 5.

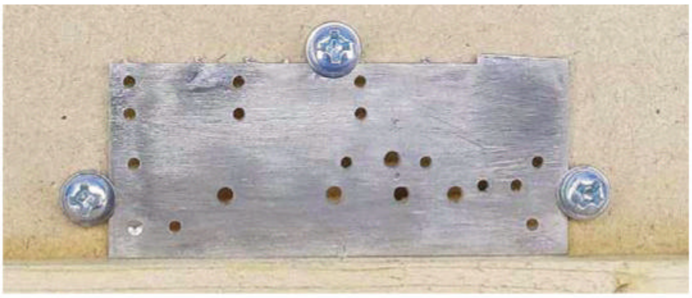


Figure 6.

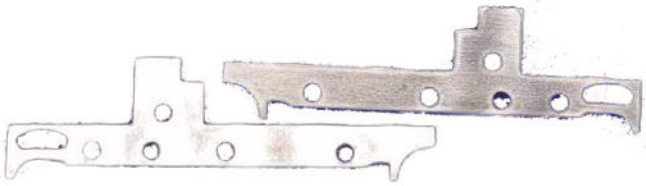


Figure 7.

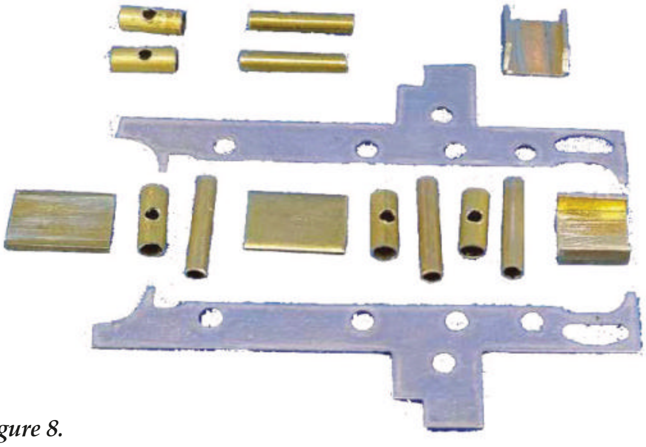


Figure 8.

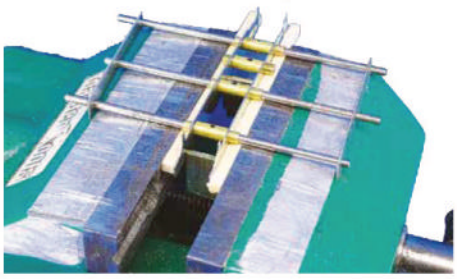


Figure 9.

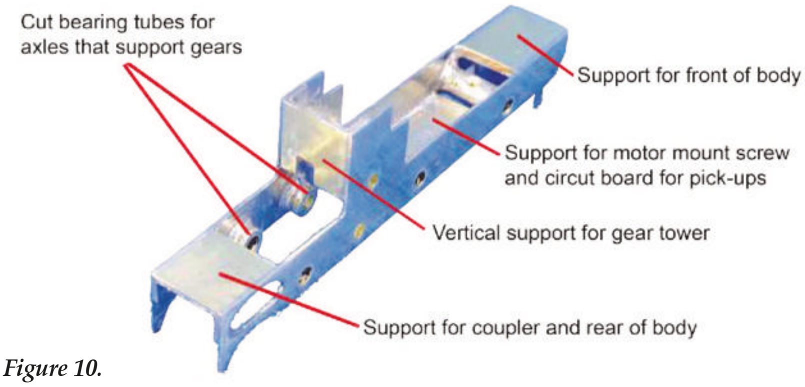

Cut bearing tubes for axles that support gears
Support for front of body
Support for motor mount screw and circut board for pick-ups
Vertical support for gear tower
Support for coupler and rear of body

Figure 10.

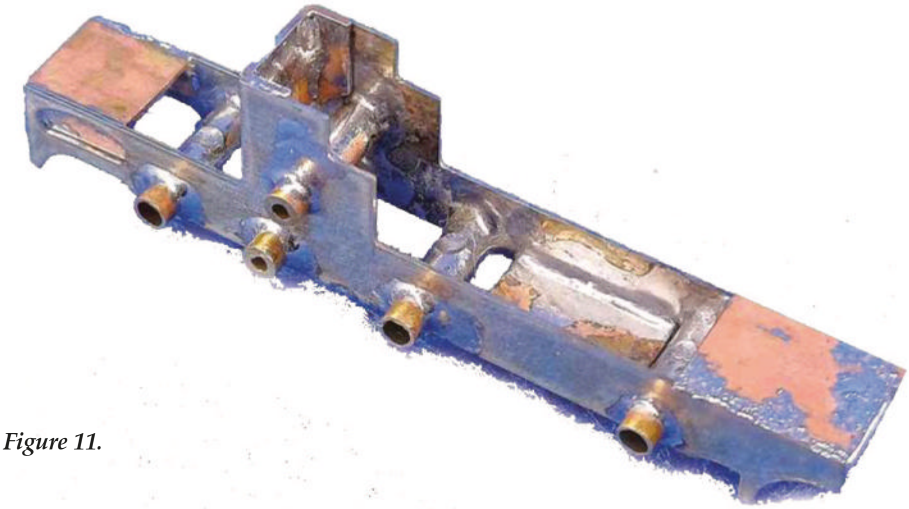


Figure 11.

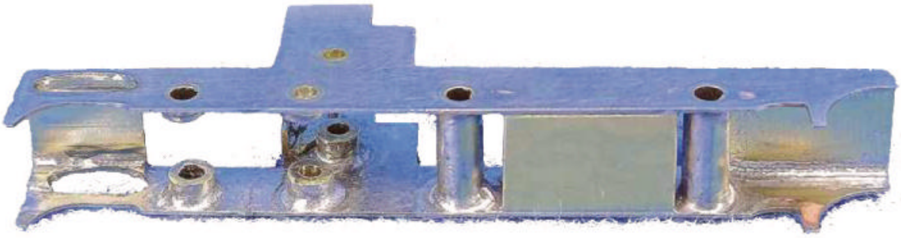


Figure 12.

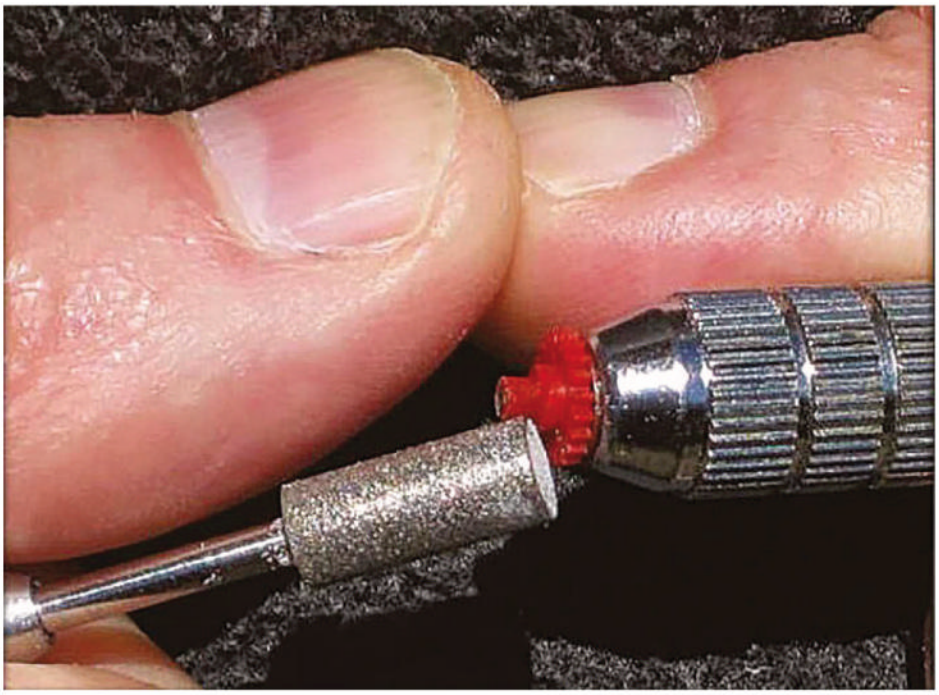


Figure 13.

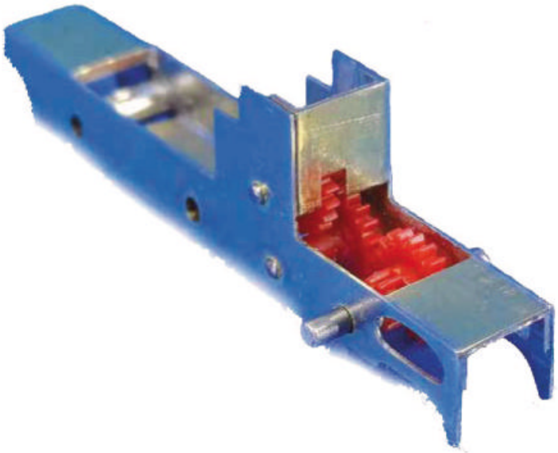


Figure 14.

train can now be assembled and tested (see figure 14). If one of the gears seems to be too tight or loose and needs relocation, all is not lost. Carefully analyse where the problem lays and determine which way the offending axle needs to move. Carefully unsolder the offending bearing stubs and elongate the holes in the chassis sides to accommodate a newly made bearing tube and spacer in the new position. Make templates, one for each side, with holes that can be located by wire stock protruding from the remaining bearing tubes and with a hole in each template that can locate wire stock to support the replacement bearing tube in its new position. Solder the new bearing tube in place then cut the tube to take the gear as before.

Motor installation

The motor is now to be mounted onto the chassis. To form the motor mount, two lengths of brass bar approximately the length of the motor are cut; one piece 6mm wide and the other wider than 6.6mm. The two pieces are soldered together with the wider section overhanging the narrower evenly on each side. Clean off excess solder so that the narrow piece fits between the chassis sides and the wider piece rests on top of the chassis, see figures 15 and 16.

A hole is drilled through the lower spacer plate and into the positioned motor mount. The hole in the motor mount is threaded and the hole in the spacer widened to accept a screw, see figure 17.

I use Micro-Trains Line® N Scale coupler screws (or similar) because I have the tap and drills that are used to mount these couplers, but any small screw and matching tap will suffice. The sides of the mount can be finished to the chassis sides.

To complete the motor mount a locating lug is made (see figure 18). A small slot is cut into one of the chassis sides and with the mount in place, a hole is drilled through the slot into the mount and a piece of brass rod of suitable size glued into the mount so that it protrudes into the slot in the chassis.

With the mount in place the motor can be held on it and the gear meshing examined. To facilitate this, cut two elongated holes in the gear tower so that the meshing can be viewed. The mount will probably need shaping to better support the motor and to achieve good meshing, see figures 16, 17 and 18. Don't be concerned if the motor is offset from the centreline. Proper meshing is more important, as long as the body width can accommodate the lateral positioning of the motor. With wires attached to the motor's terminals, identify the direction that the motor is rotating and ensure that the motor is correctly orientated for the required running direction before attaching the motor to the motor mount. The motor is attached to the mount with 24-hour Araldite®, while ensuring that the motor is upright, correctly orientated and in mesh. A small piece of Kapton tape should be placed over the mounting screw hole to keep it free of glue. Do not use a superglue; it is much harder to release than epoxy if the motor needs replacing. Once the epoxy is set, test that the motor drives the gear train freely.

Wheels and coupling rods

The wheels can now be installed. Wheels on either end of the same axle must be accurately quartered, i.e. they must be set at 90 degrees to each other, and all other axles must be identically assembled. Spend some time doing this, working from one side of a wheel set to the other and back, and with the wheels in different positions, until you are confident that accurate quartering has been achieved. The wheels also need to be set close to 7.54mm back of one wheel to the back of its partner wheel, i.e. back-to-back, (between 7.5mm and 7.6mm is acceptable) otherwise issues will be encountered over points or on curves. Next, install coupling rods using strips of nickel silver drilled to the same spacing as the axles and attach to the wheels with crank pins (see figure 19).

Depending on the diameter of the crank pin holes in the wheels, I have used 0.65mm diameter dress-makers pins or 1mm diameter nails with the heads suitably shaped as crank pins. Do not make the crank pins too tight in the coupling rods; a little bit of slop is good. With the motor removed, test the quartering of the wheels by running the chassis on some track. Any binding needs to be identified and corrected, which is often the result of a wheel being out of quarter.

Once the chassis is free running, shape the coupling rods (see figure 20) by placing the strip in a vice and filing to the vice jaws.

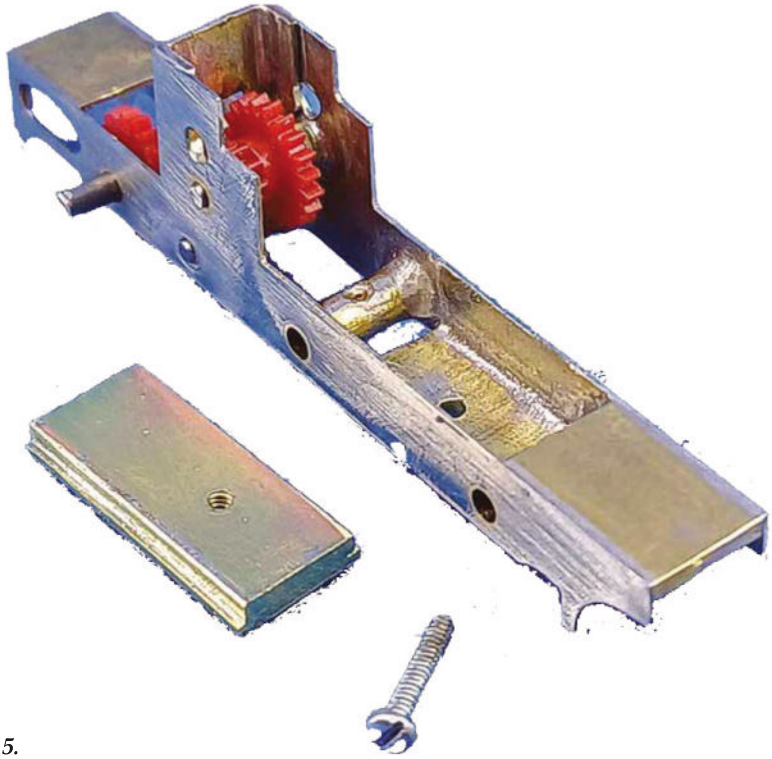


Figure 15.

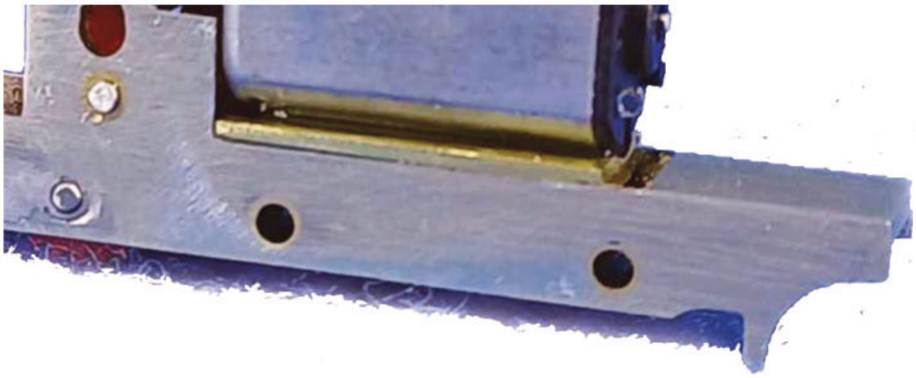


Figure 16.

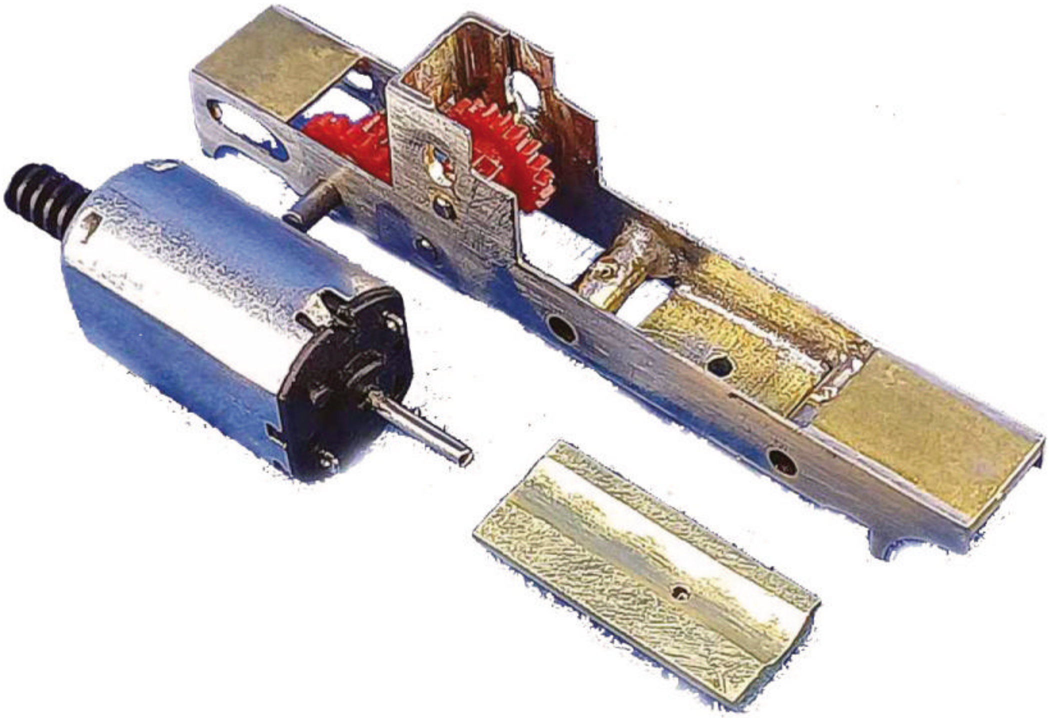


Figure 17.

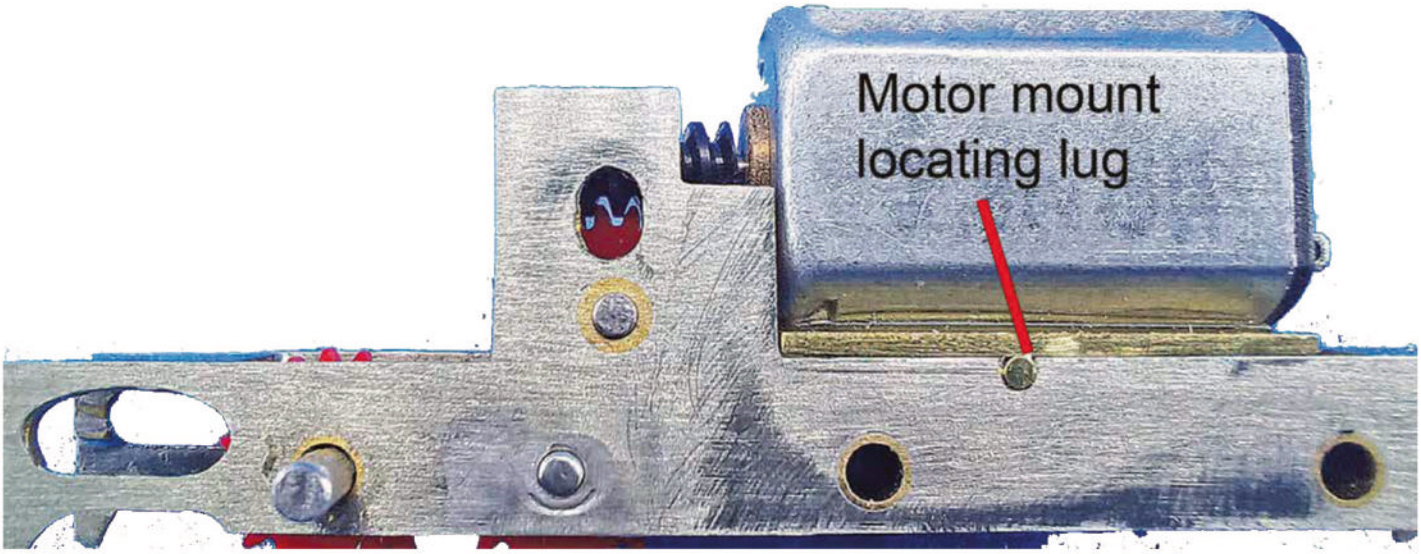


Figure 18.

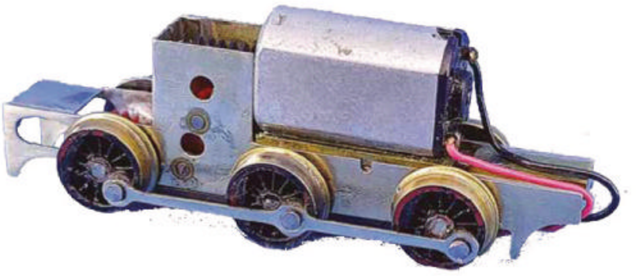


Figure 20.

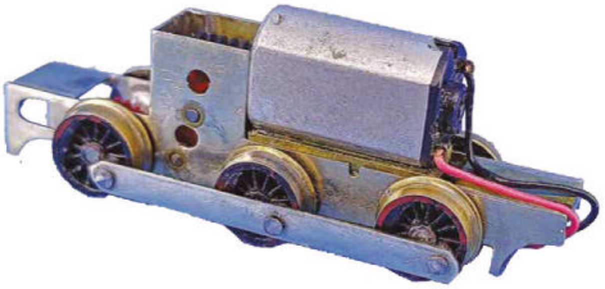


Figure 19.

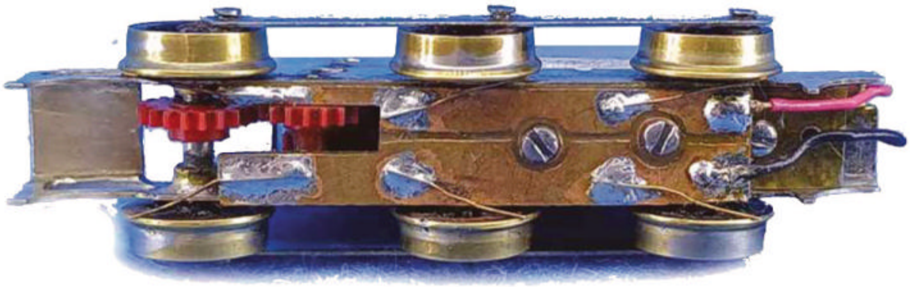


Figure 21.

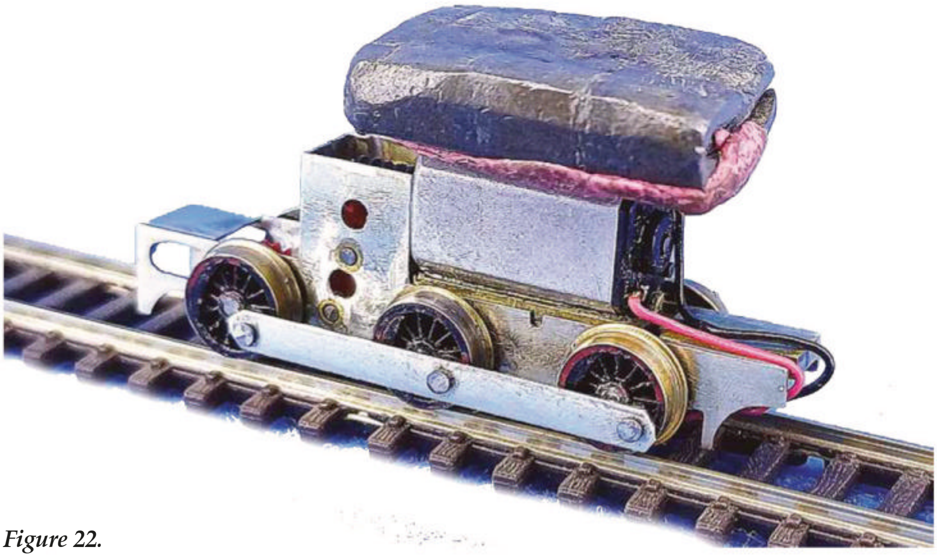


Figure 22.

Pickups

Finally, the pickups are made. A piece of circuit board is shaped to fit on the lower chassis spacer and chassis sides and is drilled to accept mounting screws which are tapped into the lower mounting spacer (see figure 21).

The motor mounting screw can be used as one of the mounting screws, otherwise relief will have to be provided for this screw head. The circuit board is scored to provide electrical isolation between left side and right as well as around the screw heads. Pickup wipers of 0.25mm phosphor bronze wire are cut over-length, soldered to the circuit board and bent outwards. The assembly is then mounted on the chassis and the wipers are cut to the length required using the wheel flanges as guides (see figure 21). The motor can be electrically connected to the circuit board and the chassis tested with a suitable weight as a body substitute (see figure 22).

Do not be disheartened if the chassis at first runs a little rough. With careful analysis, and clean wheels and track, all problems can be solved. Often the problem is quartering or binding coupling rods so check these issues carefully. A little extra weight on the chassis may help with electrical connectivity to the track. As with all chassis, a run-in period is usually required. Good luck with your project.

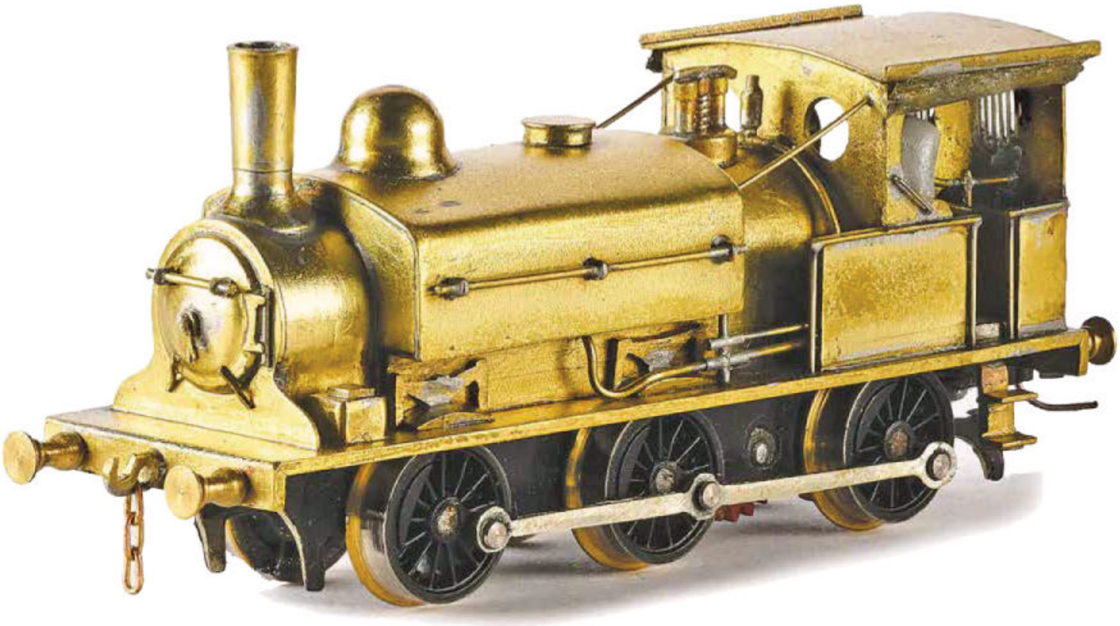


__Figure 23.__ J & A Brown No. 4 model un-painted, photo Mark Jesser.

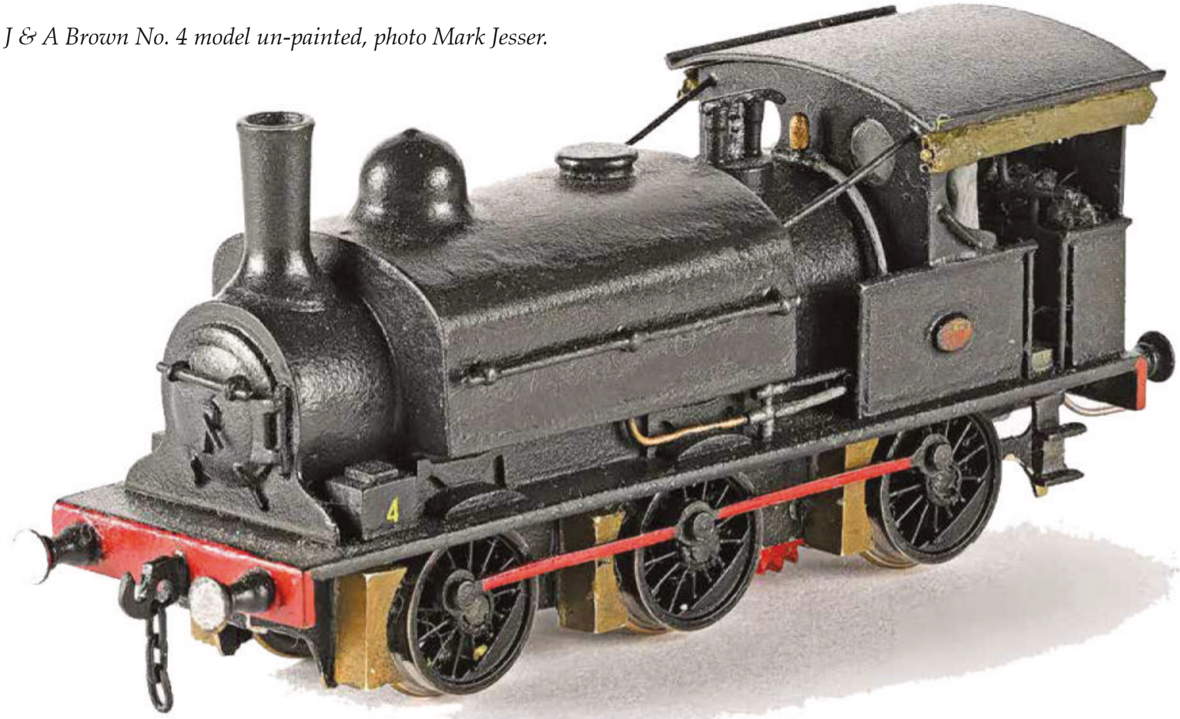


__Figure 24.__ J & A Brown No. 4 completed model, photo Mark Jesser.

__Figure 25.__ J & A Brown No. 4 completed model and un-painted, photo Mark Jesser

New South Wales Government Railways (NSWGR) CX and HCX passenger coaches in HO scale by Casula Hobbies,
40 Moore St., Liverpool 2170.
https://casulahobbies.com.au
Price: $150.00 each.

The prototype

In the late 1890s, new passenger coaches were introduced to take advantage of the O and P class locomotives that offered faster journeys without the need for as many intermediate stops. The latter became an issue for second class passengers who had to use station toilet facilities. Ritchie Bros built a new design to be known as Express Lavatory Coaches; more commonly known as 'dog boxes'. Each passenger compartment had access to a toilet, with the seat for one passenger lifting up to provide access to the facilities.

The first to be produced was the LFX second-class coach, followed by coaches modified from BX coaches and some CX coaches became LFX coaches. The coaches were built over an extended period, with several different contracts/ builders being used, and thus various different types of roof construction being employed; Mansard, low- and high-elliptical styles. The latter became the normal elliptical roof style. Also, different builds used different bogies; the short 2SB and longer 2AD types. Volume 1 of Coaching Stock of the NSW Railways, (Eveleigh Press, 1999) outlines the many builds and uses for the coaches. Due to the longer life and varied use, these coaches received numerous different liveries.

This 'dog box' offering is based upon the early-built 2SB bogie fitted CX coach, with the liveries offerings dated from the 1930s onward.

The CX coach has six compartments; two central 1st class compartments with two 2nd class compartments either side.

The HCX was a composite class coach with guard's accommodation. The code was first used in the mid-1930s. In 1961, six coaches coded HCX were converted from CX coaches, primarily to work on the steeply graded Batlow, Oberon and Dorrigo branch lines and were later used on mixed trains on outlying branch lines around the state. These coaches were modified from different construction batches of the CX coaches, which made them a bit different to each other. The two HCX offerings are representations of single coaches (1187 and 1384), based on photographic evidence.

A HO scale model, the HCX has been produced previously (Austrains), however, this model represented the T&G sided conversions from the 1930s AJ class composite sleeping coaches.

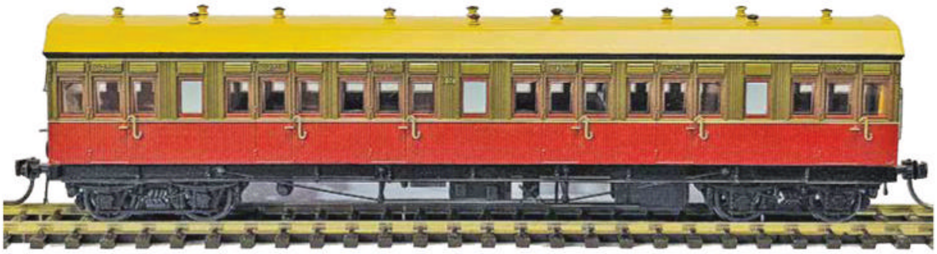
The model

The offering in this production run are:

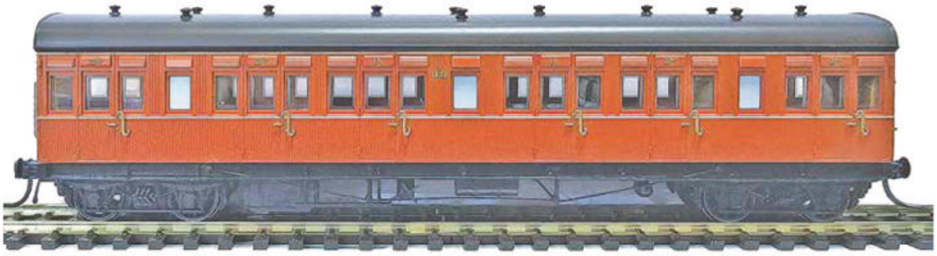
- HCX composite passenger brake vans, all are painted in Indian red livery without lining.
- HCX1187 (Mansard roof) HCX1384 (Elliptical roof) with dark grey roof.
- HCX1187 (Mansard roof) with ochre (Navy dressing) roof.
- HCX1384 (Elliptical roof) with silver roof.

CX passenger coach.

- CX1371 (Mansard roof) CX1631 (Elliptical roof) Tuscan red and Russet livery, full lining and ochre roof.
- CX1414 (Mansard roof) CX1745 (Elliptical roof) Tuscan red and Russet livery with single line and ochre roof
- CX1181 (Mansard roof) CX1630 and CX1632 (Elliptical roof) Indian red livery with single line and dark grey roof.
- CX1389 (Mansard roof) CX1711 (Elliptical roof) Indian red livery with single line and ochre roof.
- W619X (Mansard roof) L817X (Elliptical roof) Way and Works cream livery with silver roof.



NSWGR CX composite class coach in the Tuscan red and russet livery with Navy dressing, mansard roof.



NSWR CX 1632 in the Indian red livery with dark grey, elliptical roof.

Reviewed models are: Two CX coaches in Indian red and Tuscan and Russet livery and a HCX in Indian red livery.

The models show an incredible likeness to the 'dog box' coaches that this reviewer rode in on mail and paper trains from Sydney to Goulburn in the 1950s. They have the characteristic tumblehome sides and large S-shape brass door grabs and lever door handles, individually added during assembly. A nice detail addition are the door hinge obtrusions and the ventilators over the doors and windows. On the CX, coach-end handrails and footsteps (painted black) are fitted, as are the multitude of roof-mounted ventilators, each fitting snugly onto the roof surface. The windows are glazed with toilet windows being 'frosted', rather realistically. On both colour schemes the window frames are black. Buffers, air hoses and a knuckle coupler are fitted; the buffer heads are sprung. The coupler, from the KadeeTM range, is not correct; in that in real life, these coaches had screw couplers. But we modelers have our demands!

The CX coaches feature tongue and groove timber siding while the HCX correctly shows the plain 'Masonite' finish, replicating the covering placed over the T&G siding when these coaches were modified. In service both coaches had Mansard or Elliptical roof styles.

On both coaches there is an additional lower step board under one compartment (CX) and the guard's compartment (HCX). Both coaches have lamp irons on the sides and ends, as per the prototype. Torpedo vents are correctly used on the HCX coaches.

The underframe includes the truss rods and queen posts, full length underframe level foot board plus replicas for generator, battery boxes, fuse panel, hand brake spider and release lever, air brake storage tank and brake cylinder plus linkage. The airline replication is by fine wire and seems almost complete and ready for an air test. The floor underside shows the floor supports and boards. All are painted a matt black which will respond to the application of light weathering.

The bogies are the correct NSWGR 2SB type fitted with NMRA RP25-88 profile eight-spoke wheels on short, pinpoint axles. This combination provides for the bogie to be at its narrowest and thus it fits nicely under what is a narrow passenger coach. The bogies track well and were tested over a combination of Code 100, 83 and 75 track and point work. These are the same bogies as used under the Casula Hobbies R coaches which have never given any running problems; almost derailment free!

The coaches track well around 60cm and broader curves and are designed to negotiate a tighter radius. Hence the coupler box being mounted proud of the coach headstock.

However, the coupler boxes can be moved inward; removing the bogie and the coupler reveals three coupler mounting holes in the coach underfloor. With the coupler box mounted flush with the headstock the sprung buffer head just touch on the 60cm radii curves, and then move as the curve is negotiated, a nice touch.

The coaches are relatively light permitting a reasonable length train behind power-limited steam engine models. On a 1 in 40 grade, the Casula Hobbies 12 class easily hauled four coaches. A prototype train would have been much shorter; mostly one of each coach and maybe a sleeping coach.

Compared with given dimensions, these are accurate models. A startling point about the NSWGR 'dog box' is that, comparatively, it is not a big coach. Generally, the prototype is about 10" (25cm) narrower in and 12" (30.5cm) shorter in height than say a standard 72'6 TAM sleeping coach. The shorter, narrower proportions of a 'dog box' sticks out in a string of passenger coaches, especially on mail or paper trains. Pleasingly, the accuracy of the dimensions of the model reproduces this effect in 1:87 scale – just like the prototype!

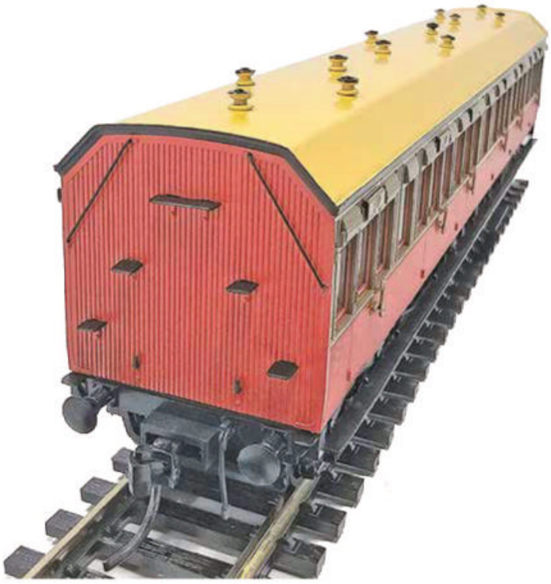
Livery

The finish on the coaches is delightful. There will never be a full consensus of the 'right' colour for russet and red or navy dressing, but the colour on these coaches is good. The brightness of the navy dressing roof may need dulling down or weathering, but the models represent when they were released from Carriage Works Eveleigh (CWE). The lining is sharp as are the class codes and coach numbers; equal to what is available from the best pad printing process. The latter are distinctive and include the shaded lettering.

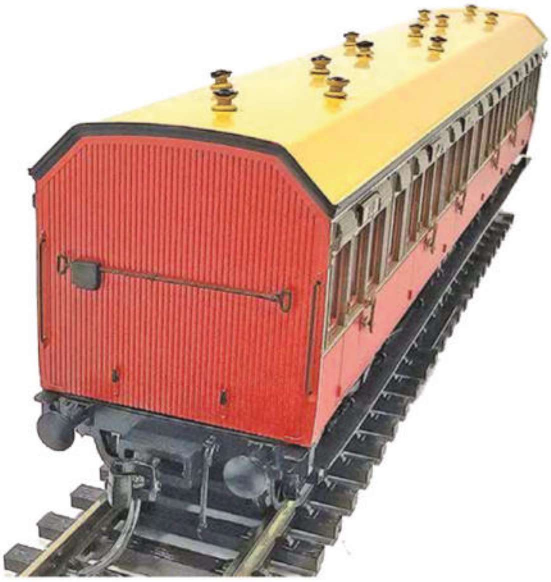
Summary

The two models are a welcome addition for the period-driven NSWGR modeler. They are representatives of the single coaches that were used during the steam era and a good part of the early diesel scene. They run well and they look nice!

Bob Gallagher

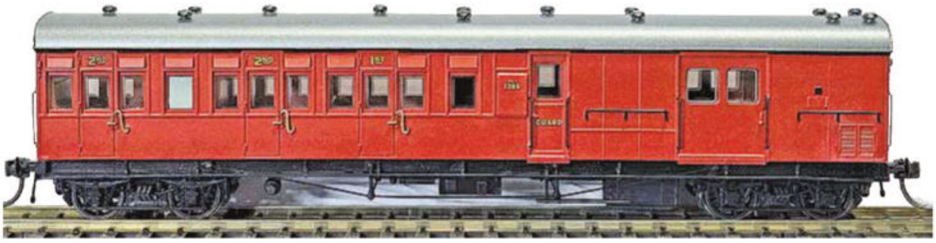


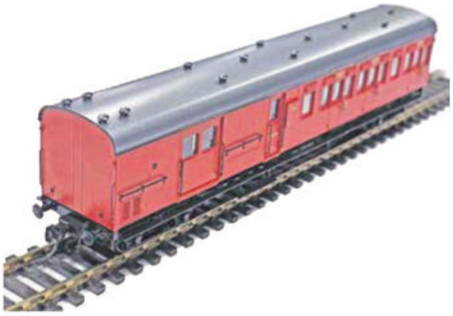
The end of the CX coach showing the black handrails and steps.



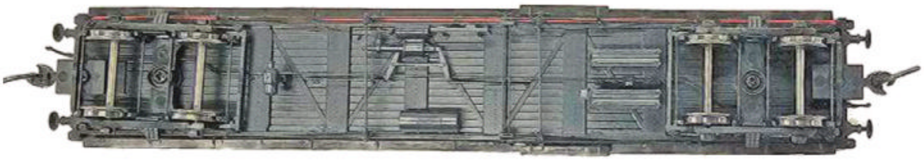
The coach ends of the CX differ, the other end having the lighting isolation switch mechanism and levers appropriately fitted, just like the prototype.

▶ HCX 1384 composite class branch line guards van in the Indian Red livery with silver roof.





The Indian Red livery with grey roof HCX showing the plain coach end and the correct torpedo vents.



The underside of the coach showing the moulded floor detail and the air piping and brake detail.

Auscision Models – N scale and HO scale

Have released the r-t-r N scale Public Transport Commission of New South Wales (PTC of NSW) 442 class locomotive, in DCC ready and DCC with sound. Available in the following liveries and road numbers:

- 44201 and 44239 in Indian red with duck egg logo
- 44205 in Indian red with L7 logo and 44223 without yellow frame stripe
- 44217 and 44226 in reverse with L7 logo
- 44201 and 44203 in State Rail Authority of New South Wales Candy with yellow L7 logo, and 44214 and 44220 (no buffer plate) with white logo
- 44223 in FreightRail light blue, 44218 and 44240 in dark blue
- JL404 in R&H Transport
- 44209 and JL406 (unique version) in Chicago Freight Car Leasing Australia (CFCLA)
- 102 in BHP blue
- 44204 'Paul Fitzgerald' and 44206 in Southern Shorthaul Railroad (SSR) yellow and black

Refer: https://www.auscisionmodels.com.au/N%20Scale%20-%20442%20Class%20Locomotive.htm

44201 in Indian red livery.

Also received is a re-run of the r-t-r HO scale BGVF in SSR livery available in four-wagon packs. This includes 15 BGVFs with per prototype applied graffiti, are available in single wagon packs

Refer: https://www.auscisionmodels.com.au/BGVF%20Grain%20Hopper.htm

BGVF 1314-Q with graffiti applied.

On Track Models – HO scale

Has released the Victorian Railways four-wheel L wagon r-t-r in the following six wagon packs:

- LSV-01 - 1950s-era with gable roofs
- LSV-02 - 1960s-era with gable roofs
- LSV-03 - 1960s-era with three gable roofs and three curved roofs
- LSV-04 - 1970s-era with gable roofs
- LSV-05 - 1970s-era with gable roofs
- LSV-06 - 1970s-era with five gable roofs and one curved roof
- LSV-07 - 1970s-era with curved roofs
- LSV-08 - 1980s-era with gable roofs
- LSV-09 - 1980s-era with curved roofs
- LSV-10 - 1980s-era with curved roofs

Refer: https://ontrackmodels.shop/collections/victorian-l-4-wheel-sheep-van

◥ *VR L four-wheel sheep van with curved roof.*

▶ *VR L four-wheel sheep van with gable roof and user-fitted doors on one side for ease of adding sheep.*

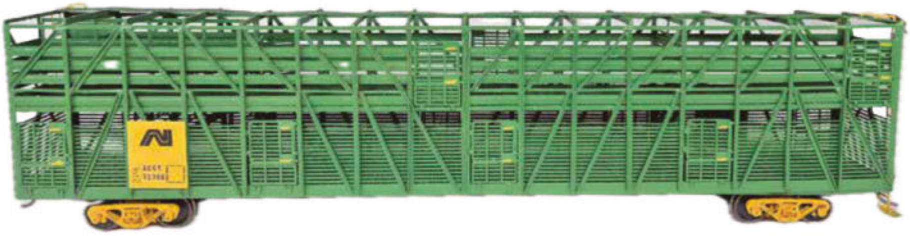
Recent Releases

Scale Model Reproductions – HO scale

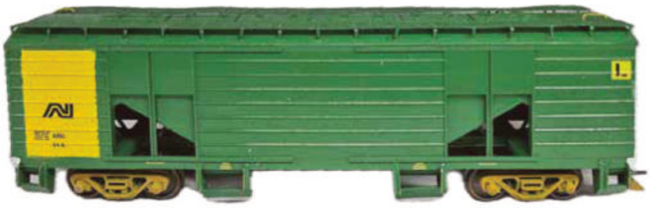
Have released a few Australian National (AN) wagon kits including:

- ACCY double double-deck cattle wagon. This kit is primary brass fret construction.
- AHDL and AHHH grain hopper wagons, including metal roof walks.

Please contact: Seanrendell@internode.on.net

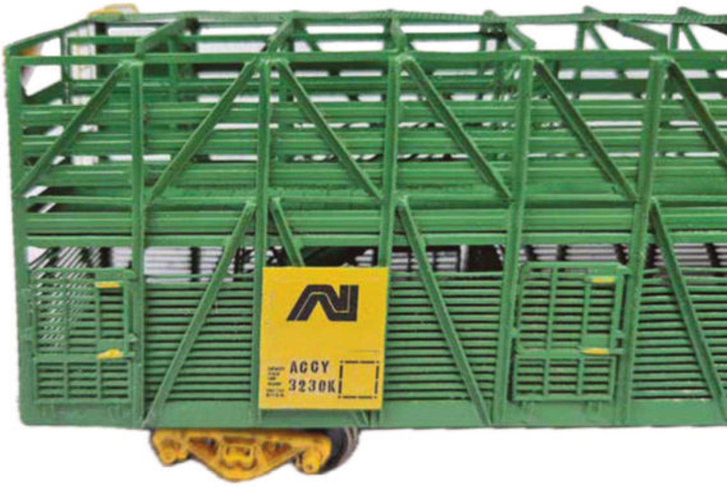


AN ACCY double deck cattle wagon.

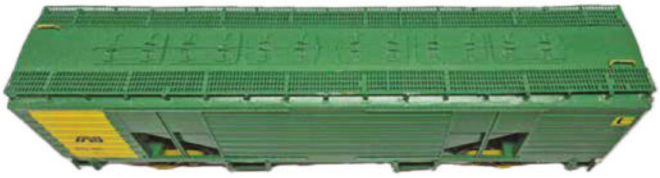


AN AHDL grain hopper wagon.

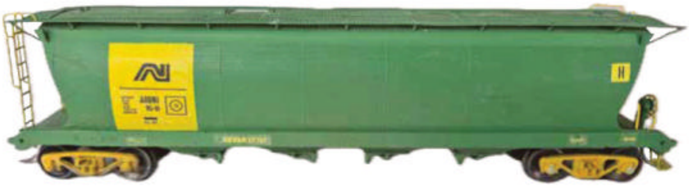
AN AHDL grain hopper wagon without AN decals.



AN ACCY double deck cattle wagon, detail.



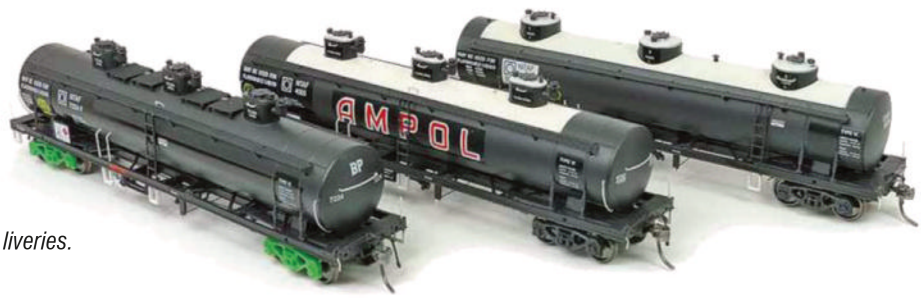
AN AHDL grain hopper wagon roof detail.



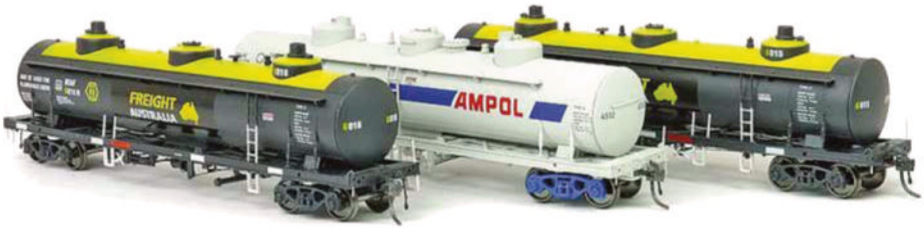
AN AHHH grain hopper wagon.

SDS Models – HO scale

Has re-released the NTAF fuel tank wagon. Available r-t-r in 12 different four-wagon packs, and two one-wagon packs.



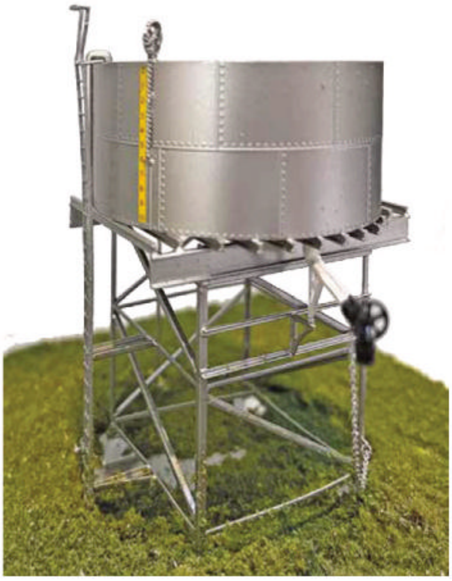
NTAF fuel tank wagons in Freight Australia and Ampol liveries.



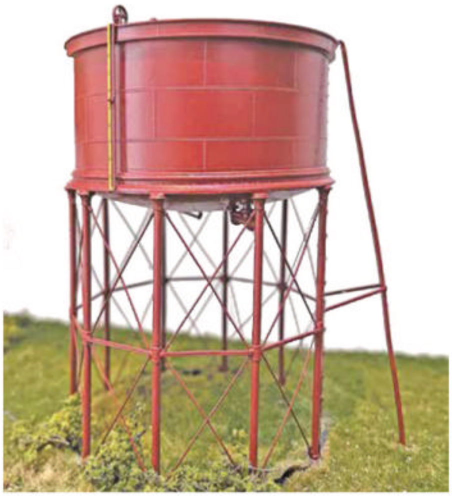
NTAF fuel tank wagons in BP and Ampol liveries.

Trainbuilder – HO scale

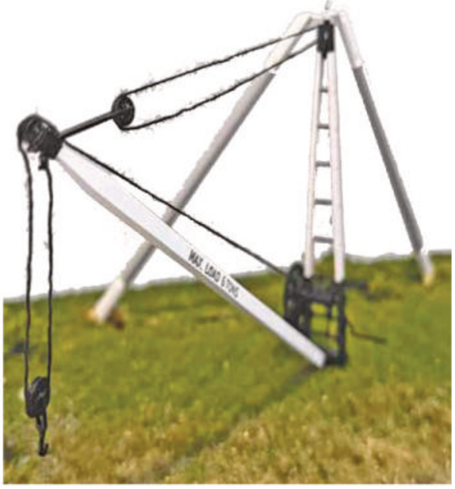
Have released the Victorian Railways 10,000 and 20,000 gallon water tanks and the 6-ton yard crane, available assembled and painted.



VR 10000 Gallon water tank.



VR 20000 Gallon water tank.



VR 6-ton yard crane.

3 Foot 6 Models - HO and HOn3½ scale

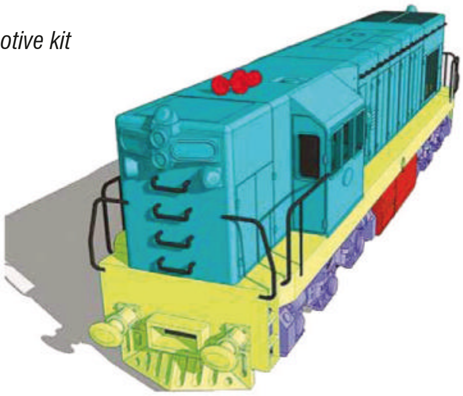
Has released a Queensland Railways (QR) 1400 class body shell kit - available with either searchlight or later headlight arrangements.

Designed to fit KadeeTM couplers, each 3D printed kit includes:

- Underframe and body shell
- Bogie side frames x2 (fabricated or Dofasco)
- Fuel tank / battery box and horn
- The recommended mechanism (not included) is a Northyard Engineering G12/G8 (A-1-A) 12mm gauge chassis.

Refer: https://www.3foot6models.com/store/p/qr1400classhoscale

QR 1400 class locomotive kit digital rendering.



Tranz Rail - Tasrail DQ class locomotive conversion kit

The DQ class were rebuilt Queensland Railways 1460 – 1502 class locomotives.

Kit includes:

- DQ class cab in New Zealand service
- Front and back ‘bull bars’ as built in New Zealand (X2)
- NZ cowcatchers (X2)
- Anti-climber for headstocks (2)

Mechanism:

SDS Models / CGL Models r-t-r QR 1460 – 1502 class locomotive

Refer: https://www.3foot6models.com/store/p/tranzraildqclasslocomotive

New Zealand Railways (NZR) DC class diesel locomotive shell

DC4588 was exported to Tasmania (Tasrail), DC4041, DC4444, DC4571 and DC4692 were exported to Queensland for use on construction trains on the Carmichael coal mine railway.

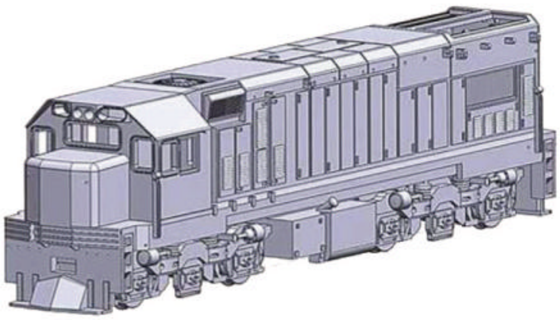
The kit consists of:

- Body shell, Fuel tank, 2X Dofasco bogies, Dynamic brake fan and vents
- Handrail stanchions, brackets, Air horns, steps and other detail parts

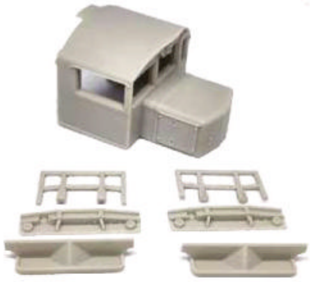
Grilles are not included but available separately.

The recommended mechanism (not included) is a Northyard Engineering G12/G8 (A-1-A) 12mm gauge chassis.

Refer: https://www.3foot6models.com/store/p/nzr-dc-class-shell-tyzcs



NZR DC class class locomotive kit digital rendering.



Tranz Rail (Tasrail) DQ class locomotive conversion kit

Auscision Models – N scale and HO scale

Have confirmed the following projects in transit to Australia; the HO scale r-t-r South Australian and Victorian Railways Overland passenger coaches, and GT46C-ACe locomotives. Included with this shipment are new 'Auscision Models crew' figures, spare parts to re-stock the current inventory, and the balance of the State Rail Authority of New South Wales (SRA of NSW) XPT passenger sets models.

Auscision have also received unpainted pilot models of their HO scale r-t-r XGAY, WGBY, WGSY and BGSY grain hopper wagons. Their factory is currently working on the painted pilot models which are expected to arrive soon. Once these have been checked they will go straight into production.

Features of these models include:

- Metal etched see-through roof walks, metal etched end platforms and handrails.
- Super fine brake equipment, coupler pin pulling lever chain
- Fine scale metal disc wheels with accurate wheel and axle profile
- Die-cast end platforms and side sills, scale size metal knuckle couplers with trip pin removed and metal wire handrails.

To be available in the following four wagon packs:

- XGAY AWB – ATN Access grey, two different numbered packs
- WBGY AWB light blue, two different numbered packs
- WGSY AWB dark blue, two different numbered packs
- BGSY George Weston Foods - Southern Shorthaul Railroad (SSR) yellow, four different numbered packs

Auscision have announced the production of the HO scale r-t-r New South Wales Government Railways (NSWGR) 49 class locomotive.

This project includes 20 different body versions to produce all 24 liveries and road number combinations. Both versions of the class will be produced, full valance (4901-4912) and cut away valance (4913-4918).

The model will have the following details and features:

- Five-pole skew-wound motor with twin brass flywheels
- Operating headlight, number box lights and red/white marker lights
- Printed circuit board (PCB) with 21 pin decoder socket plus four switches on the fuel tank to operate lighting on DC
- All wheel drive and electrical pickup, heavy die-cast chassis
- Scale size metal knuckle couplers, etched brass windscreen wipers, cab mirrors and roof grilles
- Metal wire handrails and grab irons, detailed cab interior with painted driver and fireman figures
- Scale size air and multiple unit (MU) hoses, sanding pipe and under chassis details, sprung buffers (as applicable)

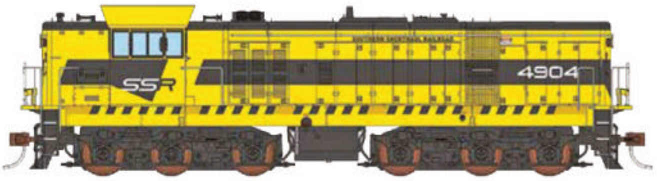
DCC sound equipped models will be fitted with: a ESU LokSound 5 chip, 'keep alive' functionality including an isolating switch on the fuel tank, and Vandersound speaker enclosure with twin speakers.

The 49 class will be available in the following liveries and road numbers:

- 4901 (double marker lights) 4907, 4909, 4913 and 4914 in Indian red, as delivered with single marker lights and buffer plates
- 4908 (large coat of arms plate), 4916 (with aluminium windows) 4915 Indian red 1980's with, double marker lights and buffer plates
- 4905 and 4918 SRA of NSW Candy with yellow L7, grey roof and buffer plates
- 4907 SRA of NSW Candy white L7 with red/grey roof and buffer plates
- 4906 (no buffer plate) 4910 and 4916 SRA of NSW Red terror - white L7 with red roof and buffer plates (as applicable)
- 4901 and 4902 green and yellow - with no buffer plates
- 4911 FreightRail blue and yellow and buffer plates
- 4910 FreightCorp blue and yellow with no buffer plates
- 4908 '3801 Limited' Indian red and cream with Waratah logo and no buffer plates
- 4918 '3801 Limited' black and red with Clyde Logo and buffer plates
- KL80 and KL82 Chicago Freight Car Leasing Australia (CFCLA) blue and silver with No buffer plates
- 4904 and 4917 SSR yellow and black with no buffer plates

Pilot models are expected to arrive from their factory at time of publication.

Unpainted pilot model XGAY grain hopper wagon.



Digital rendering of 49 class No. 4904 in SSR livery.

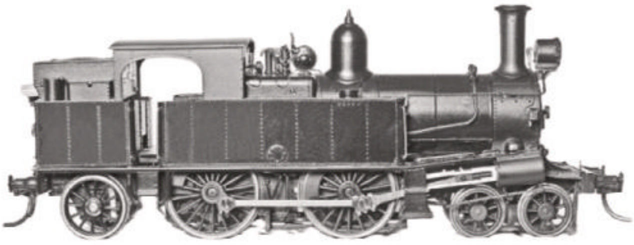
Auscision have received unpainted pilot model of their forthcoming N scale r-t-r SRA of NSW 81 class locomotive.

SRA of NSW 81 class N scale r-t-r unpainted pilot model.

Casula Hobbies – HO scale

Have received the pilot model of their forthcoming r-t-r New South Wales Government Railways (NSWGR) Z13 4-4-2 tank locomotive.

The pilot model is currently with DCC Solutions, who is developing the sound project for the model and will be installed before being returned to China for final production. The model will be available in DCC ready and DCC sound and delivery is anticipated in early 2026.



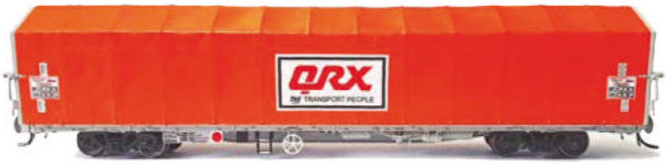
Z13 4-4-2 tank locomotive.

CGL Models - HOn3½ and HO scale

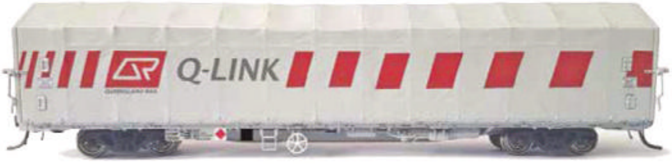
Has announced their next Queensland r-t-r wagon project will be the CCH/CCHP prairie wagon. The CCH wagons were converted from the HWO open wagon in the early 90's for use by the freight forwarding company Queensland Railfast Express (QRX). The CCHP wagon was the last to be converted and was decorated with Queensland Rail's Q-Link freight business livery of grey and maroon.

Production of the CCH/CCHP is expected to be completed in late 2025.

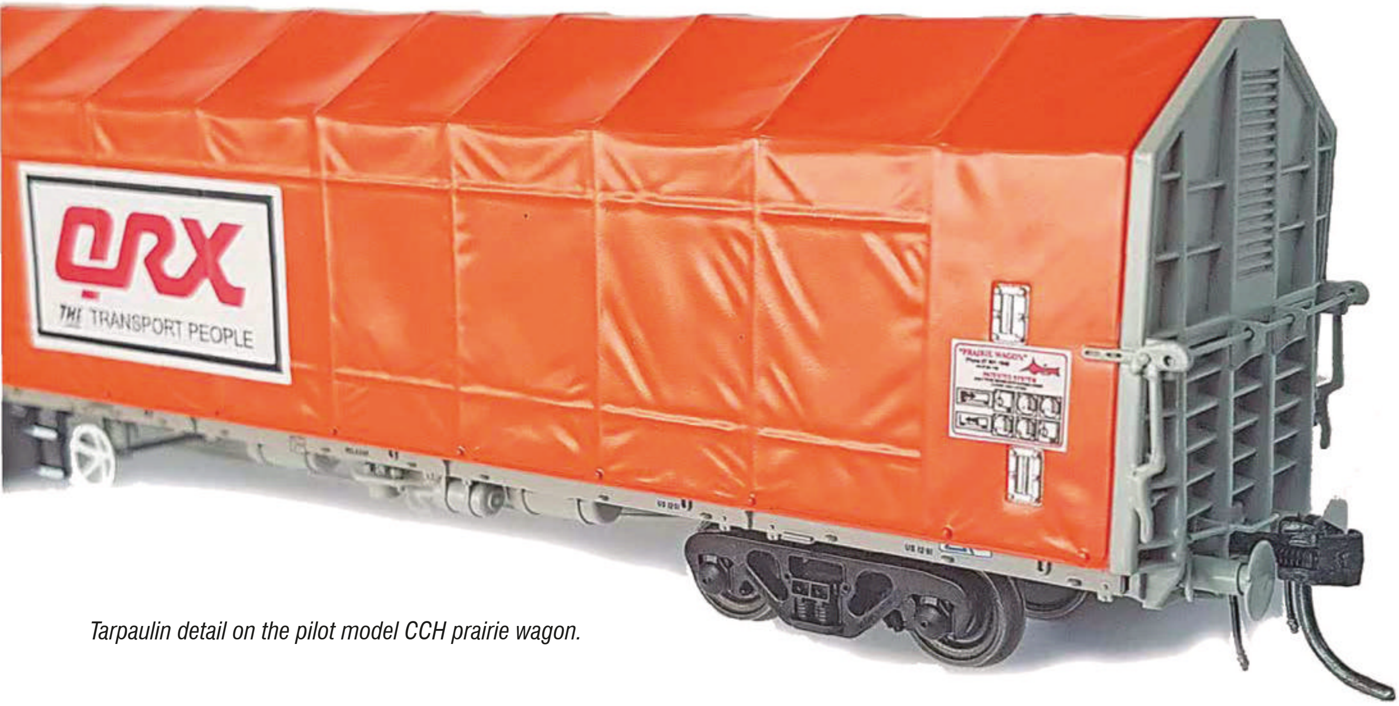
The CCH/CCHP will be available in both HOn3½ 12mm and HO 16.5mm gauge. A total of eight running numbers and two wagon codes will be produced in four different two-wagon packs.



Pilot model CCH prairie wagon.



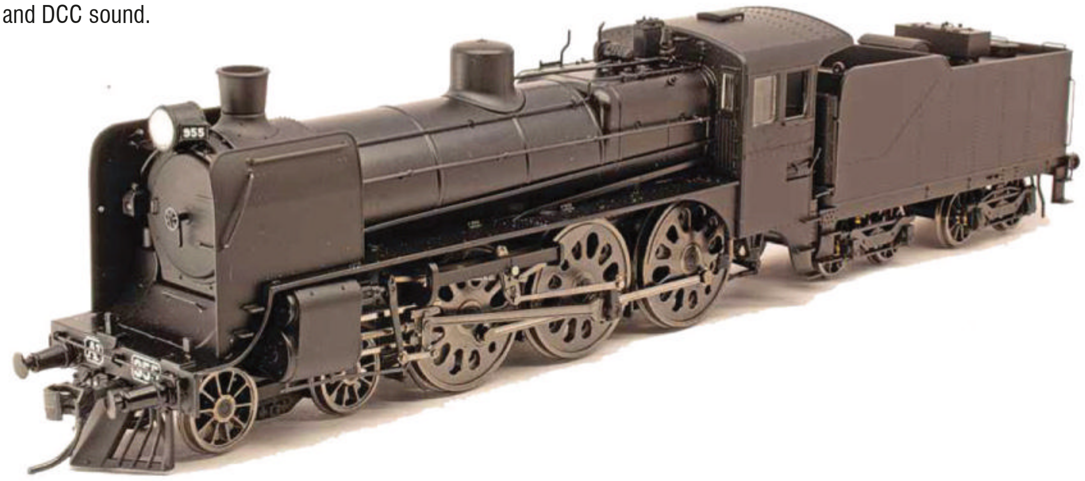
Pilot model CCHP prairie wagon.



Tarpaulin detail on the pilot model CCH prairie wagon.

Ixion Model Railways – HO scale

The r-t-r Victorian Railways A2 class 4-6-0 steam locomotive production run has arrived in Australia on the 7th of June. After passing through Customs and following their own checks, they are expected to be distributed to hobby shops in early July. The model is available in DCC ready and DCC sound.



VR A2 class 4-6-0 steam locomotive pre-production model.

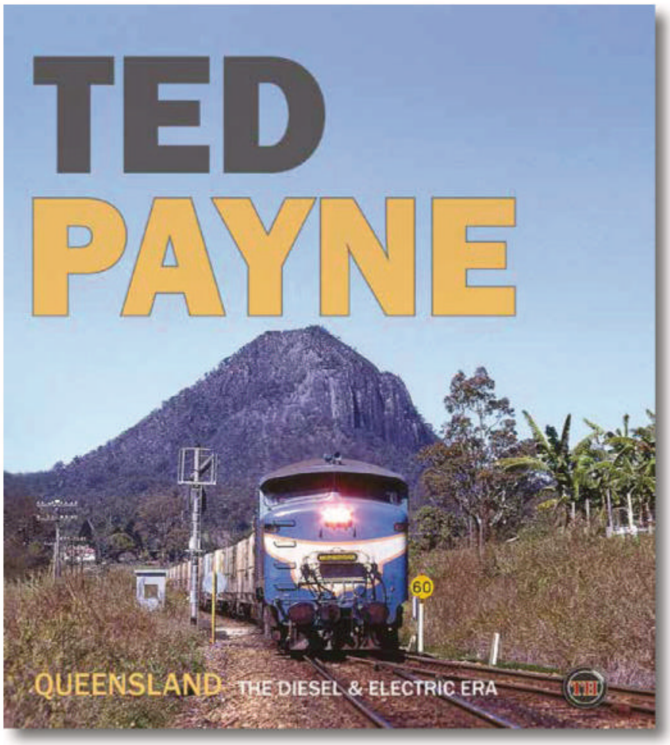
AMRM News

SDS Models – HO scale

Have received painted pilot models of their FG sitting coaches, and pending arrival are the ‘Caves Express’ coaches and end platform ‘Greyhound’ coaches.

Train Hobby Publications – All Scales

Have advised that the next book in the Ted Payne series covering Queensland diesels and electrics era is expected to be released at time of publication.



Train Hobby Publication’s ‘Ted Payne’ series latest book covering Queensland diesels and electrics era.

Corrections:

Issue 372, page 33 – both photos should be credited to the Newcastle Library.

Want to be published in the AMRM?

Do you have an article idea, or would you like to see your layout in AMRM?
Contact the editor at:
amrmeditor@outlook.com

AMRM Team

Trainorama – HO scale

Expected deliveries of the r-t-r GM1 series and GM12 series, VR S class and NSWGR 42 class from their factory. Last notification received was for the GM class locomotives to be shipped to Australia around early August 2025

Caloundra and District Model Railway Association Inc update

Has provided an update on their building works, which are progressing well. However, the construction of a ramp has turned out to be more expensive than expected. If you can help this club achieve their goals, please contact the club and donate if you can.

Terry Hicks
President, Caloundra and District Model Railway Association Inc

Building progress at the Caloundra and District Model Railway Association Inc.

AMRM is on the move

The AMRM is moving to a new office, and renovations are currently in progress. When the move is completed, we will update readers, and yes it does have a room with a view!

The interior of the AMRM’s new offices, prior to renovation.

Vale

Roger Johnson

1946 - 2025

It’s with profound sadness we advise the death of Roger Johnson who passed away on the 8th of June 2025.

Roger was the son of a 1950s English emigrant, the family settling in the Rockhampton (Queensland) area. Roger met and married the love of his life, Carol, also a daughter of a 1950s English emigrant. They were together for 58 years, with Mark and (the late) Katherine their children.

Roger joined the Royal Australian Air Force (RAAF) as an apprentice and after qualifying as an airframe fitter, trained as a draughtsman. He met Carol on his first posting to Williamtown, and later served in Perth, Laverton and Edinburgh SA, where they eventually settled. Among the dwellings they lived in, they built two houses, with Roger project managing the first and Carol the second after Roger’s comment “I will never do that again!”

Their first family-built home had a small amount of acreage, and Roger tried his hand at farming, growing wheat using vintage farm machinery. The second home they built included a very large shed and the property was situated next to a cemetery. Roger loved a joke and claimed that he would never leave the area again, pointing down his driveway towards the adjacent cemetery. The large shed was not for his model trains – Roger was keenly interested in aircraft, particularly the World War II era Spitfire and building flying models. The shed was large enough to house some of the large models he built and subsequently destroyed. Roger stated “I am not a good pilot” which meant he spent many hours rebuilding his models and helping run the local model airfield club. To move his model aircraft, he built a large trailer, as big as a caravan.

Both he and Carol enjoyed roaming around Australia, be it to a railway site, an air show, a farm field event or just enjoying the scenery. For this they acquired a couple of mobile homes over the years.

Early in his life. Roger gained an interest in the New South Wales Government Railways (NSWGR) and took notes of items he saw trackside. From measurements of an obsolete open wagon sitting in Toronto yard, he drew a scale plan and offered it to AMRM. Coincidentally, this writer had also measured and photographed this derelict wagon. Naively, we did not know if it was an old D wagon and ash truck, but this simple wagon was the commencement of a commitment to share our knowledge and encourage modelling of the NSWGR through readers of AMRM.

AMRM readers were also able to gain from Roger’s working experience. After leaving the RAAF he worked in the minerals handing industry and later, as a consultant, designing wine storage tanks and an operating cover for South Australian Railways (SAR) grain wagons. Roger understood the engineering aspect of the drawing subject and he tried his hand at many difficult issues. He was extremely proud when the AMRM published his drawing of the SAR 400 class Garratt. Roger considered this his masterpiece; drawn from measurements and photos.

When I met Roger, in the mid-1970s he was a mad Garratt fanatic. He even disassembled a Model Dockyard HO scale AD60 to ‘make it right’. He also dabbled in British outline P4 modelling. As his ability to maintain his model aircraft waned, he returned to railway modelling. Not the pre-1900 era in which he had expressed interest, but as a On2½ scale Victorian Railways ‘Puffing Billy’ modeler. He had also taken courses to become an industrial 3D draftsman, and although not too successful, he managed to master 3D printing which enhanced his modelling skills.

In a sense, Roger was a quiet man until he was among long-term friends, where he could quickly become the life of the party. He never shirked work, be it manning the seminar registration desk, vacuuming the floor at the end of the meet or spending countless hours preparing a presentation with which to share with seminar participants. His knowledge on harnessing horse-drawn wagons was shared with interested parties. In the Australian narrow gauge railway modelling scene, he made some very close friends which helped him enjoy the last years of his life.

However, as an enthusiastic volunteer, Roger will be seen as a giant among us all. He never said no to a difficult task and took on some projects despite their size. He contributed to over 89 articles as well as drawing all the different Silver City Comet cars for a Byways of Steam essay. The enthusiasm Roger showed towards making sure that the AMRM was available to help the model railway hobby in Australia grow, was exemplary. He was not alone, but one of the team.

Was he successful in his endeavours? Would the Australian model railway scene be as healthy as it is now without the efforts of those volunteers like Roger, I think not.

Thanks for your contribution to our hobby Roger, it was a pleasure to share and be able to enjoy your life.

A wonderful man!

Bob Gallagher

Roger Johnston.

Diary

EXHIBITIONS & EXPOS

DEE WHY – NSW. July 19-20, 2025. NSRMA's 52nd exhibition moves to a new venue at a new time. PCYC, 40 Kingsway, Dee Why. Open: 9am–5pm (Sat), 9am–4pm (Sun).
Contact: exhibition@nsrma.com.au

BRAYBROOK – VIC. August 2-3, 2025. Sunshine Model Railway Club Annual Model Train Exhibition. Braybrook Secondary College Sports Stadium, Burke Street Braybrook. Open: 9:30am-5pm (Sat), 9:30-4pm (Sun). Adults $10 Kids Free. Free parking. Enquiries: Ted 03 9311 8389 or Joe 03 9360 4125. www.sunshinemrc.org.au or find us on Facebook.

FLEMINGTON – VIC. August 2-3, 2025. AMRA Vic Branch Exhibition. Melbourne showgrounds, Langs Road, Flemington. Open: 9am-5pm (Sat), 9am-4pm, (Sun). Enquires: Clubrooms phone: (03) 9885 7034. Email: exhibitionamravic@gmail.com.

BRISBANE – QLD. September 20-21, 2025. Brisbane Model Train Show. Northside Indoor Sports Centre, 20 Cambewarra St, Zillmere (off Pineapple St). Open: 9am-5pm (Sat), 9am-4pm (Sun). Adults $18, Concession $12.
Website: www.brisbanemodeltrainshow.com.au

SUNBURY – VIC. October 18-19, 2025. Sunbury Model Railway Clubs 40th Annual Exhibition. St Anne's Church Hall, 101 Riddell Road, Sunbury. Open: 10am-5pm (Sat), 10am-4pm (Sunday). Adults $10, Children $5, Family $25 (2 Adults & 3 Children).
Email: smrcinc1979@gmail.com
Website: smrcinc1979.org

ROSEHILL – NSW. October 25-26, 2025. The Great Train Show. Grand Pavilion, Rosehill Gardens Racecourse. Open: 9am-5pm (Sat), 9am-4pm (Sun). Adults $20, Seniors $16, Children $10, Family $50. Contact: Mike 0408 817 554.
Email: contact@eppingmodelrailway.org.au.
Website: www.greattrainshow.com.au
Facebook- search 'The Great Train Show Sydney.

WARRNAMBOOL – VIC. January 10-11, 2026. Warrnambool Model Railway Exhibition. St Joseph's Primary School Hall, Botanic Road, Warrnambool. Open: 10am-5pm (Sat), 10-4pm (Sun). Contact: Luke 0427 345 594.

SEMINARS & CONVENTIONS

BRISBANE – QLD. August 22-24, 2025. NMRA Australasian Region Convention. Flight One Qantas Drive Archerfield, Brisbane. Clinics, Demonstrations, Display Layouts, Model & Photo Contests, Non-Railroad Partners Program, Layout Tours & Operation Sessions (20th, 21st & 25th August).
Email: div1sup@nmra.org.au
Details: www.nmra.org.au

EPPING – NSW. August 30, 2025 Modelling the Early Days of NSW Railways, Dence Park Creative Centre, 26 Stanley Road, Epping. Registration essential. Phone: 02 9311 2036.

EPPING – NSW. September, 27 2025. SCMRA Seminar. Sydney Electrified Railway II. Epping Creative Centre, 26 Stanley Road, Epping. Open: 9am-4.30pm (Sat). Registrations essential by 22 September. $50 includes lunch.
Register at https://www.trybooking.com/CXTWX.

ADELAIDE – SA. September 7, 2025 Registration at 8.30 for 9am start Saturday. Modelling the Railways of South Australia 28, at the Flinders Medical Centre lecture theatres, Bedford Park. Registration forms: MRSAC, 16 Sargent Parade, Bellevue heights SA 5050. Website: www.mrsac.com; or selected hobby shops. Contact: at the above address or
Email: mrsaconvention.Rego@gmail.com.

SALE DAYS

GOLDEN BEACH – QLD. October 4, 2025. Caloundra and District Model Railway Association. Caloundra indoor Bowls Association, 55 Burke Street, Golden Beach. Open: Saturday. All enquiries to the club's mobile number: 0434 541 915.

EPPING – NSW. July 26, 2025. Model Railway Market Day, Epping Creative Centre, Dence Park, 26 Stanley Road, Epping 9.30am–1pm. Table rental: contact@eppingmodelrailwayclub.org.au

SLACKS CREEK – QLD. November 2, 2025.Logan District Model Railway Club. 76 Springlands Drive, Slacks Creek. Open 9am–1pm (Sun). Adults $5—Kids Free under 12 years. Contact: Chris Paterson President LDMRC. Email: president@ldmrc.com

BRENDALE – QLD. November 9, 2025. RMCQ Clubrooms, Buckley Park, 20 Terrence Rd, Brendale Qld 4500. Sellers only register from 8.30am. Open 10am-1pm (Sun). Entry by a gold coin donation per family. Sellers only Tea, coffee, soft drinks and sausage sizzle available. Enquiries: rmcqevents@gmail.com (preferred) Club President – phone: 0437 342 811. Website: rmcq.org.au facebook.com/rmcqbrendale

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ADVERTISING DEADLINE

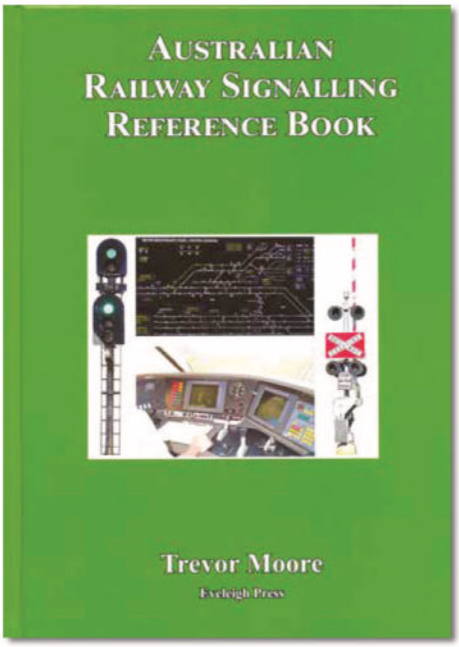
October 2025 Issue 374

Advertising deadline is:
8 August 2025

The October 2025 issue should be available at the normal outlets around 12 September 2025.

Reviews

Australian Railway Signalling Reference Book
by Trevor Moore, Eveleigh Press
Email: railsignalbook@gmail.com
Price: $100 plus $20 postage.
Also available from selected railway bookshops in the Sydney metropolitan area.



The prototype

Where do I start? On an initial flick through the pages, it becomes very apparent that Trevor has put many years of work into this, drawing upon his long and distinguished career in the railway industry. What we have here, is an absolute (excuse the hyperbole) encyclopedia of Australian railway signalling, track, electrical, and infrastructure items, dating from the steam era mechanically semaphore signals, point levers, interlockings, level crossings, right through to the modern age of electronically controlled systems, and everything in between. The list goes on, this publication, with its 344 pages between green-coloured hard covers is, without a doubt, THE go-to book for information on such subjects.

The book is well laid out and begins with an introduction dealing with the basics of railways and signalling, followed by a short history of safe working and signalling systems. It deals with all aspects of track, civil engineering, rollingstock, as well as electrical and asset protection.

The list goes on to cover all aspects of rail safety and operations throughout its pages, right up to and including rail safety legislation, and additionally, touches on some incidents caused by safe working breaches.

This publication provides a plethora of information for the modeller, and most notably, it provides excellent detail images of trackside items, and comprehensive guides to their prototypical placement within the rail corridor – an aspect many modellers struggle with when planning their layouts. Additionally, this publication provides an excellent insight into the history and advancement over the years of track, signalling, and safety standards of Australian railways.

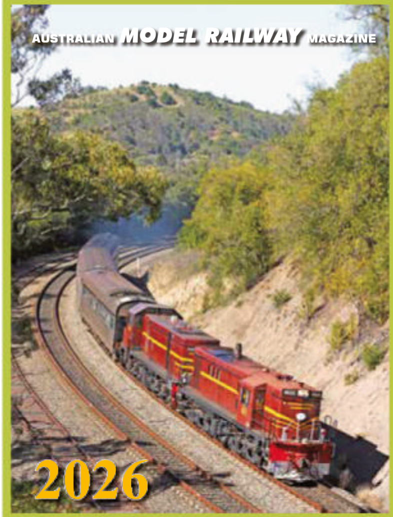
Trevor should be highly commended for putting in so much effort, research, and his own expertise into this publication. Even your reviewer, who has spent many years working in the rail industry himself in NSW, learnt many new things regarding the rail corridor environment!

Both rail enthusiasts, and modellers, regardless of which era they model, will find so much valued information between the covers of this book. I highly recommend adding a copy of this to your book collection.

Brett Kavanagh

The 2026 AMRM Calendar

Two Calendars in One – Twice the Value



The diesel cover features 4833/4918 with AK car track inspection train. Other photos include Genesee and Wyoming Darwin to Adelaide freight service; VR B73/T407 at Broadford; NSW 4015 on a coal and grain train at Thornton; Hamersley Iron 4038 and 2004 Alco at Wombat Junction; QR 1600 class between Linville and Moore; BHP 54 within the confines of BHP Newcastle steelworks, Mayfield; CR crimson and silver GM13 and GM24 near Caltowie, east of Peterborough; TGR 2110/2112/2111 cross South Esk River, east of Longford between Launceston and Deloraine; VR Walker's railcar RM28 at Healsville; NSW 4841 leads short goods between Michelago and Royalla on the Cooma line; VR T class locomotives T389/T386/T335 approaching Tallarook; Pacific National 8250/8212/8167/8243/8222 approaches Omega, north of Gerringong with a grain train.

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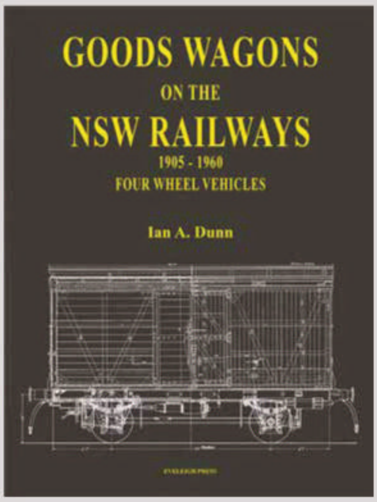
2026

The steam cover features NSW Standard Goods 5439 departs Wyong with No.269 pick-up goods. Other photos include: VR J556 with No.25 approaches Wail with Melbourne to Dimboola passenger service; NSW 5132+5914 approaches Marulan between Moss Vale and Goulburn; QR BB18¼ 1016 heads to Mayne with No.35 goods; NSW 3820+6023 with No.631 goods at Fassifern, Newcastle; SAR No291 Peterborough to Port Pirie goods with Garratt 400; VR VR J523/N462 No.38 goods from Maryborough to Ballarat; NSW 3531 with No.25x passenger from Narara' north of Gosford; TGR at Launceston prior to departing for Deloraine for Railton cement train duties; NSW 3008T hauls No.24 mixed crosses the Belubula River, from Eugowra; QR C17 917 crosses the Bremer River with 'workers' train from Ipswich station; NSW 3315 departs Armidale with No.13 *Glen Innes Mail*; WAGR W903 at Donnybrook with No.346 goods.



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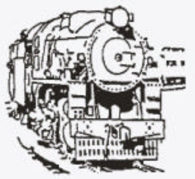

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- The 3000 Class Railcars
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- Mitcham to Belair Railway History
- Modelling Cool Cars
- SAR Narrow Gauge Brake Vans

With additional articles in the notes on locos, wagons and more...

Displays of these and other topics will also be on hand. Lunch and comprehensive notes on all presentations will be provided as usual.

Registration forms will be available from mid-June:

- as an on-line registration form, or form for downloading, from the Convention website at www.mrsac.com.
- from some hobby shops.

Forms should be available at the June Exhibition and will be emailed or posted to recent attendees in late June.

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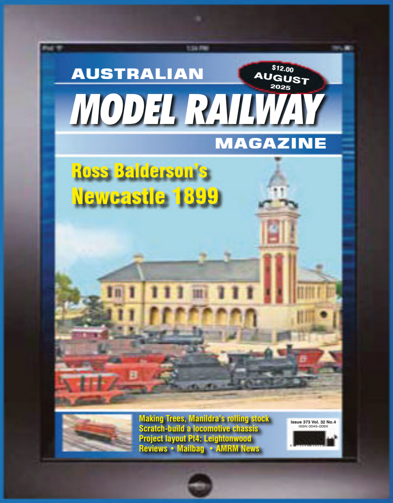

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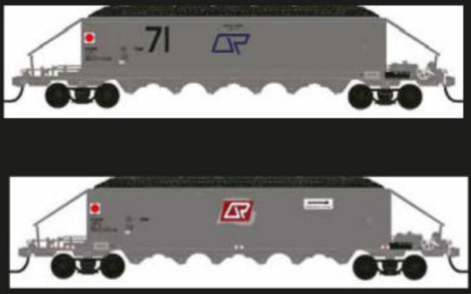

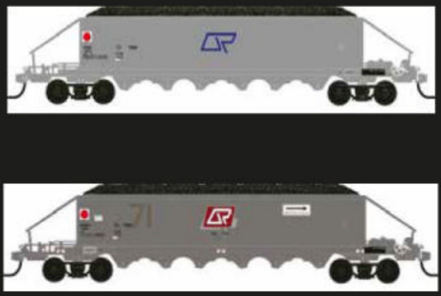

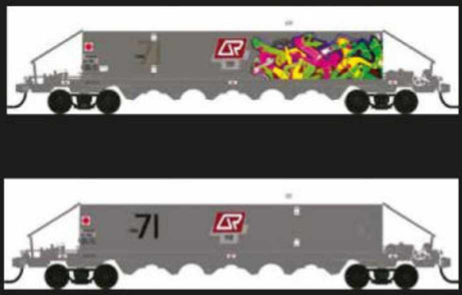

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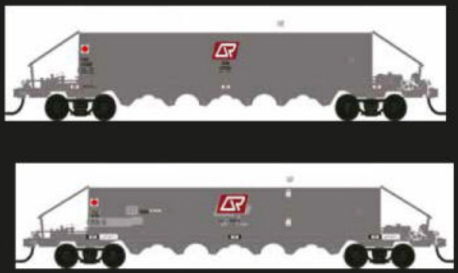

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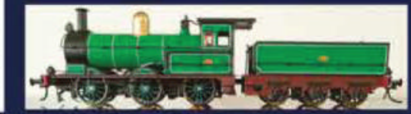

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